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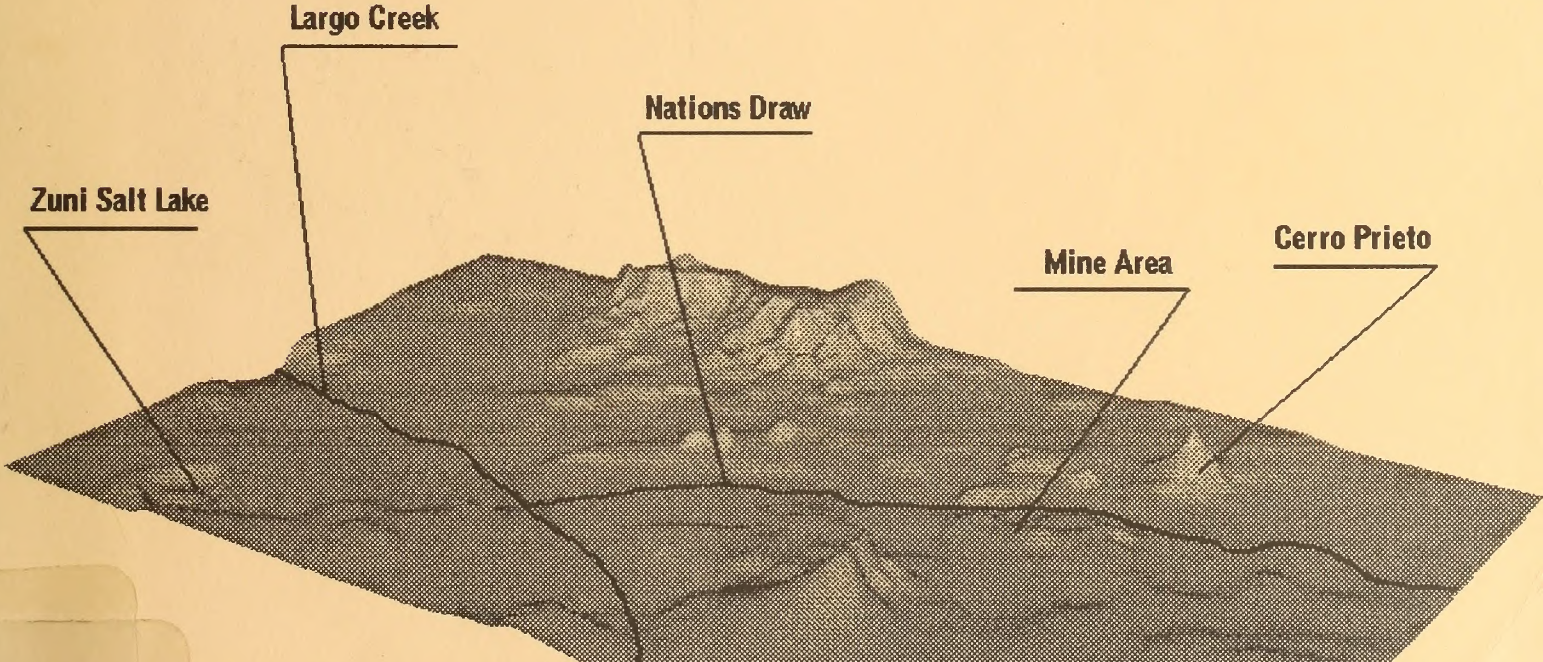
Environmental Impact
Statement OSM-EIS-31

March 3, 1849

PROPOSED MINING PLAN AND PERMIT APPLICATION, FENCE LAKE MINE, CATRON AND CIBOLA COUNTIES, NEW MEXICO, AND APACHE COUNTY, ARIZONA

U.S. Department of the Interior
Office of Surface Mining
Reclamation and Enforcement



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MARCH 3, 1849

United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

IN REPLY REFER TO:

April 12, 1996

To All Interested Parties:

Enclosed is the Office of Surface Mining Reclamation and Enforcement (OSM) final supplemental environmental impact statement (EIS) for Salt River Project Agricultural Improvement and Power District's (SRP) proposed Fence Lake mine.

OSM was the lead agency in the preparation of this supplemental EIS, which has been prepared in cooperation with the State of New Mexico Mining and Minerals Division (MMD), the Bureau of Land Management (BLM), and the U.S. Environmental Protection Agency (EPA). The agencies have selected Alternative 1, approval of the applicant's proposal with conditions, as the preferred alternative.

After publication of this supplemental EIS, OSM must make decisions on the proposed Federal actions analyzed in this document. These Federal actions are (1) to recommend either approval or disapproval of SRP's proposed life-of-mine mining plan for the Fence Lake mine in New Mexico, and (2) to approve with conditions or disapprove SRP's permit application package for a railroad corridor over which coal would be transported in Arizona. If the permit application package is approved, OSM would also issue a Federal permit to conduct surface coal mining and reclamation operations in Arizona. These decisions can be made no sooner than 30 days after the Environmental Protection Agency (EPA) publishes its *Federal Register* notice of availability of the final supplemental EIS.

The State of New Mexico Mining and Minerals Division (MMD) must make a decision to either approve with conditions or disapprove SRP's permit application package for the Fence Lake mine in New Mexico. If the permit application package is approved, MMD would issue a State permit to conduct surface coal mining and reclamation operations in New Mexico. MMD is a cooperating agency in the preparation of this supplemental EIS and, therefore, is coordinating with OSM in the decision-making processes.

The BLM's Fence Lake Project EIS (1990), which this analysis supplement's, was republished as volume II of the draft supplemental EIS, but is not being included with this final document. For additional copies of the draft supplemental EIS or of the final supplemental EIS, please contact Dr. Robert Block at the OSM address provided above, or by telephone at (303) 672-5610.

Sincerely,

Richard Seibel

Richard J. Seibel
Regional Director

#34631270

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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

Final Supplemental Environmental Impact Statement
OSM-EIS-31

PROPOSED MINING PLAN AND PERMIT APPLICATION,

FENCE LAKE MINE,

CATRON AND CIBOLA COUNTIES, NEW MEXICO,

AND

APACHE COUNTY, ARIZONA

April 1996

Prepared by the

U.S. OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

in cooperation with the

STATE OF NEW MEXICO
MINING AND MINERALS DIVISION,

U.S. BUREAU OF LAND MANAGEMENT,

and

U.S. ENVIRONMENTAL PROTECTION AGENCY

DIRECTOR Robert J Uram

COVER SHEET

Proposed actions:

The Federal actions of the approval, with conditions, or disapproval of (1) a life-of-mine mining plan to conduct in New Mexico surface coal-mining and reclamation operations to recover Federal coal at Salt River Project Agricultural and Power District's proposed Fence Lake mine; and (2) a permit application and a Federal permit, with conditions, to construct and operate the Arizona portion of a railroad corridor associated with this mine.

Type of statement:

Final supplemental environmental impact statement

Lead agency:

Office of Surface Mining Reclamation and Enforcement

Cooperating agencies:

New Mexico Mining and Minerals Division and Bureau of Land Management both in scoping, preparation, and review capacities; Environmental Protection Agency in scoping and review capacities.

For further information, contact:

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Abstract:

The Salt River Project Agricultural Improvement and Power District's proposed Fence Lake project has two basic elements. The first of these is the proposed Fence Lake surface coal mine, consisting of Federal, State, and private coal leaseholds situated northwest of Quemado, New Mexico. The proposed surface coal mine would cover about 16,813 acres in total, of which 7,885 acres would eventually be disturbed. Mining at Fence Lake would remove approximately 81.3 million tons of coal over the 50-year life-of-mine utilizing surface mining methods. Specifically, it would remove about 1.8 million tons of coal per year from year 3 through year 28 and about 3 million tons of coal per year from year 29 through year 40. The second element of the Fence Lake project would be a proposed 44-mile railroad corridor that would be associated with the proposed mine. The railroad corridor would be constructed west from the mine to supply coal to the existing Coronado Generating Station, located approximately 6 miles from St. Johns, Arizona. It would include approximately 1,306 acres, of which 547 acres would be disturbed. The Fence Lake project would include about 18,119 total acres in both of its elements, of which 8,432 acres would be disturbed.

The Fence Lake project would include Federal, State, and private lands. Although no Indian lands would be included in the project, Zuni Salt Lake, a sacred site to a number of Indian tribes, is situated approximately 9 miles from the proposed mine permit area and 3 1/2 miles from the proposed railroad corridor.

The combined impact of mining at Fence Lake and constructing and operating the proposed railroad corridor that would be associated with it, on some aspects of socioeconomic and cultural resources, particularly in regard to certain sections of the salt trails, has the potential to become major over the long-term, foreseeable future. Other impacts of mining and associated activities at Fence Lake would be moderate, minor, or negligible over the long-term foreseeable future.

SUMMARY

SUMMARY

A. PROJECT DESCRIPTION

The Salt River Project Agricultural Improvement and Power District (SRP) of Phoenix, Arizona, has applied for Federal and State permits to conduct surface coal-mining and reclamation operations in New Mexico and Arizona as part of its proposed Fence Lake project. This proposed project has two basic elements: (1) the Fence Lake mine and its site facilities and (2) a 44-mile railroad corridor that would be associated with the proposed mine. The mine and its site facilities would be located in Catron and Cibola Counties, New Mexico, approximately 14 miles north of the town of Quemado. Leaseholds for the mine cover Federal, State, and private coal as well as land surface. That is, SRP owns private land and has obtained Federal and State coal leases to acquire a logical mining unit. SRP proposes to establish a total permitted area of 18,119 acres at Fence Lake; however, only an estimated 8,432 acres, or less than one half of this permit area, would actually be disturbed by the mining operations and support facilities including the railroad corridor. The railroad corridor would be constructed west of the mine--spanning about 31 miles in Catron County, New Mexico, and about 13 miles in Apache County, Arizona--and would extend to the Coronado Generating Station that is located approximately 6 miles northeast of St. Johns, Arizona.

Under the proposed mining plan, SRP would mine a total of 81.3 million tons of coal at Fence Lake. Approximately 35.6 million of those tons would be Federal coal; the remaining 45.7 million tons would be State-leased and privately owned coal. The total mine life would be approximately 50 years--2 years for premining development, 38 years to recover approximately 81.3 million tons of coal and complete reclamation, and 10 years to obtain final bond release. The coal would be transported by railroad 44 miles west of the minesite to be used at SRP's existing Coronado Generating Station.

The Office of Surface Mining Reclamation and Enforcement (OSM), the Bureau of Land Management (BLM), and the New Mexico Mining and Minerals Division (MMD), hereinafter, "the agencies," have determined that Federal approval or disapproval of the various applications associated with the proposed Fence Lake project would constitute major actions that could significantly affect the quality of the human environment. As a consequence, the agencies have further determined that, pursuant to Section 102(2)C of the National Environmental Policy Act, an environmental impact statement (EIS) to supplement the EIS that BLM prepared in 1990 for the Federal leasing action at Fence Lake, should be prepared.

B. ALTERNATIVES

The agencies assessed two alternative Federal actions relative to the proposed Fence Lake project for this supplemental EIS: (1) approval, with conditions, of the life-of-mine mining plan for Fence Lake as that plan pertains to the recovery of Federal coal and of the permit application contained in the permit application package (PAP) for Fence Lake as that application pertains to the Arizona portion of SRP's proposed railroad corridor and (2) disapproval of these portions of the life-of-mine mining plan and permit application. Descriptions of the approval and disapproval alternatives follow:

- **Approval, with conditions, of the life-of-mine mining plan as it pertains to the recovery of Federal coal and the permit application as it pertains to the Arizona portion of SRP's proposed railroad corridor (alternative 1)**. -- Under this alternative, and subject to conditions the agencies identify, the Assistant Secretary of the Interior for Land and Minerals Management would approve the applicant's life-of-mine mining plan as it pertains to the recovery of Federal coal at the proposed Fence Lake mine and the Director of OSM, or his designee, would approve the applicant's permit application as it pertains to the Arizona portion of the proposed railroad corridor. The proposed Fence Lake project in its entirety is summarized in appendix A. Approval would mean that any permit issued by the State of New Mexico MMD would include standard permit conditions required by CSMC Rule 80-1 of the State of New Mexico surface coal mining regulations and any permit issued by OSM would include standard permit conditions required by 30 CFR 903 of OSM's Federal program for Arizona. Approving the proposed Fence Lake life-of-mine mining plan, and the Fence Lake permit application as it pertains to the construction and operation of a railroad transportation corridor that would service the proposed mine, would make available for mining 6,442 acres of Federal coal, 8,891 acres of State coal, and 1,620 acres of private coal. According to the mining plan, approximately 8,432 acres of private, State and Federal surface area would be disturbed overall by mining and support facilities at the Fence Lake mine and by the railroad corridor. Approximately 547 acres would be disturbed by the railroad corridor alone. Coal production would total about 81.3 million tons over the life-of-the-mine.

  Alternative 1 is the agencies' preferred alternative.

- **Disapproval of the life-of-mine mining plan as it pertains to the recovery of Federal coal and the permit application as it pertains to the Arizona portion of SRP's proposed railroad corridor (alternative 2)**.-- Under this alternative, the Assistant Secretary for Land and Minerals Management would disapprove the applicant's life-of-mine mining plan as it pertains to the recovery of Federal coal at the proposed Fence Lake mine and the Director of OSM, or his designee, would disapprove the applicant's permit application as it pertains to the Arizona portion of the proposed railroad corridor. The Assistant Secretary's and the Director's rationale for disapproval would be that these plans (1) did not meet the requirements of all applicable Federal and State laws and/or (2) would or could impose unacceptable impacts on the human environment. Under this disapproval alternative, it is assumed that if the Arizona portion of the railroad corridor could not be utilized and Federal coal could not be mined, then there also would be no mining of State and private coal and no mining activity whatsoever would occur. For the purposes of this EIS, the agencies consider the "no-action" alternative to be equivalent to disapproval of the applicant's proposal.

C. COMPARISON OF ALTERNATIVES

ALTERNATIVE 1

Under the life-of-mine mining plan and permit application approval alternative, the residual impacts of mining at Fence Lake and operation of the railroad corridor would include:

- Air quality and visibility would be impacted to a minor extent, with some degradation for the short term in the mine area and along the railroad corridor; long-term impacts to the resource would be negligible.
- Topography and geology would be altered in the mine area. This would constitute a moderate to major short-term impact, and a minor long-term impact. The railroad corridor would experience minor short-term and negligible to minor long-term impacts to topography and geology. Impacts to soil productivity would be minor for the short-term and negligible for the long-term.
- Surface water quantity and quality would be subject to negligible short- and long-term impacts. Ground water quantity and quality would be subject to minor short-term and negligible long-term impacts. Zuni Salt Lake would experience negligible short and long-term impacts to the quantity and quality of its ground water.
- Impacts to grassland vegetative communities would be moderate and short-term. General wildlife species' diversities and populations would be subject to short-term negligible to minor impacts and negligible long-term impacts. Loss of sparsely wooded juniper-blue grama habitat would be long-term and generally moderate.
- Grazing impacts would be negligible in the long term as a consequence of reclamation. Impacts to recreation and scenic quality in the project area would be minor and long-term. Noise impacts would be minor for the short-term and negligible for the long-term.
- Impacts on local employment would be moderate to major and short-term; impacts on county fiscal conditions would also be moderate to major. Impacts of excessive demands on local public services and housing would be minor and short-term.
- Impacts to cultural resources would be moderate to major, and some could be long-term. Salt-gathering trails, particularly the Acoma Trail, would be subject to major impacts during the short-term life-of-mine, but the impacts would become moderate and long-term after mitigation and reclamation. Impacts to specific cultural sites would be moderate to major and long-term.
- Land use would be subject to moderate short-term impacts during the life-of-mine. Long-term impacts to land use would be negligible. Transportation resources would experience short-term moderate impacts, with a short-term

potential to become major, and long-term minor impacts with the conversion of the railroad corridor to a permanent road.

ALTERNATIVE 2--Under the life-of-mine mining plan and permit application disapproval alternative, the residual impacts from not mining at Fence Lake or operating the railroad corridor would include:

- Negligible impacts on air quality, topography, geology, paleontology, soils, vegetation, wildlife, land use and recreation, visual resources, noise, and transportation for both the long- and short-term. Any impacts that did occur would result from the collection of base line environmental information that has already taken place in the proposed Fence Lake Project area.
- Negligible to minor short-term impacts to identified/tested archaeological sites in the project area owing to the cultural resource inventory conducted prior to the submittal of the permit application package. This would also entail the potential for short-term negligible to minor impacts to sites from vandalism. There would be negligible short-term impacts to salt trails, burial sites, and undiscovered sites. All long term impacts to cultural resources would be negligible.
- Major short- and long-term impacts to socioeconomic resources resulting from the loss of jobs, personal income, business activity, and tax revenue expected to be generated by the development of the proposed mine and railroad corridor. Disapproval would mean the loss of approximately 160 temporary construction job opportunities, with an associated payroll of $1.5 million, and the loss of permanent employment over the 38-year production life of the mine with an estimated payroll of $4.7 million per year. This would have a major short- and long-term impact to the economic base of Catron County, where the proposed Fence Lake mine was expected to become the largest single source of wage and salary income in the County. Impacts to Cibola and Apache Counties would be minor to moderate in the short term and negligible to minor in the long term depending on the potential employment opportunities that would be lost with disapproval of the proposed project. However, there would be a minor beneficial impact over the short term to public services and housing within the project area that would not experience an increased level of demand placed upon them with project disapproval.

D. ORGANIZATION OF THIS SUPPLEMENTAL EIS

This EIS consists of six chapters and six appendices. Chapter 1 describes the proposed Federal actions and the purpose of and need for these actions. It also provides background information regarding the proposed Fence Lake project and identifies the relation of this project to other development in the area. Chapter 2 describes and compares the two alternative decisions the agencies have agreed upon as those most applicable to SRP's proposed mining plan and mine permit. Those alternatives considered but not analyzed in detail are identified along with the agencies rationale for not including them in the detailed analyses. This chapter also provides a comparative analysis of the environmental impacts of the alternatives.

Chapter 3 describes the environment that would be affected by mining and related activities at the proposed Fence Lake mine. Chapter 4 describes and analyzes the environmental impacts that would result from implementing either of the two available alternatives chapter 2 sets out.

Chapter 5 describes the public participation activities that have been conducted relative to the supplemental EIS, discusses issues or concerns that were considered but eliminated from further analysis, and lists the government agencies and private organizations from which the agencies solicited comments on the draft document. Chapter 6 lists, with their qualifications, the individuals who prepared both the environmental analyses contained in the document and the document itself.

Appendix A gives a summary of SRP's proposed life-of-mining plan. Appendix B provides a summary description of cumulative development that could have effects on the human environment in combination with the proposed Fence Lake project. Appendix C lists references cited in the supplemental EIS and provides a bibliography. Appendix D contains the programmatic agreement that has been developed for the treatment of historic properties and cultural resources. Appendix E contains the comments and responses on the draft supplemental EIS. Appendix F is a glossary of terms that are used in the supplemental EIS.

BLM included supplemental information on specific aspects of the proposed Fence Lake project as appendices to its 1990 EIS; this information is available for your review in volume II of the draft supplemental EIS.

PREFACE

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) requires two Federal actions related to the permit application package (PAP) that Salt River Project Agricultural Improvement District (SRP) has submitted to the Office of Surface Mining Reclamation and Enforcement (OSM) (as well as to the New Mexico Mining and Minerals Division [MMD]) for its proposed Fence Lake mine. First, SMCRA requires the Secretary of the Interior to approve or disapprove the life-of-mine mining plan described in the PAP, as this plan pertains to the recovery of Federal coal underlying the proposed mine, to be situated near Quemado, New Mexico. Second SMCRA requires the Director of OSM, or his designee, to approve or disapprove the permit application contained in the PAP as this application pertains to the construction and operation of the Arizona portion of a railroad corridor that would service the proposed mine and that would extend west from it into Arizona. If the Director chooses approval of the application, SMCRA also requires OSM to issue a Federal permit to conduct surface coal-mining and reclamation operations along the Arizona portion of this New Mexico/Arizona railroad corridor.

Pursuant to Section 503 of SMCRA, MMD developed, and the Secretary of the Interior approved, a permanent program authorizing MMD to regulate surface coal-mining operations on non-Federal lands in the State of New Mexico. In December 1982, pursuant to Section 523(c) of SMCRA, MMD entered into a cooperative agreement with the Secretary of the Interior authorizing MMD to regulate surface coal-mining operations on Federal lands within the State. Pursuant to the cooperative agreement, MMD is required to review the PAP that SRP has submitted to conduct surface coal-mining and reclamation operations on the Federal Fence Lake leaseholds in New Mexico. If these operations will meet the performance standards of the approved permanent program, the cooperative agreement also requires MMD to issue SRP a permit to conduct them. (Note, however, that it is not only operations at the Fence Lake mine proper that MMD would be permitting in this case; MMD would also be responsible for permitting operations along the New Mexico portion of the railroad corridor extending into Arizona from that mine. OSM would retain responsibility for permitting operations along the Arizona portion of the railroad corridor.)

In an environmental impact statement (EIS) prepared in 1990 for the Federal leasing action at Fence Lake, the Bureau of Land Management (BLM) identified and analyzed the probable impacts to the human environment that would result from conducting surface coal-mining and reclamation operations at the proposed Fence Lake mine. Subsequent to the preparation of BLM's original EIS, the public expressed additional concerns about the Fence Lake project, more baseline data were collected relating to the project, and SRP submitted a permit application package (PAP) to MMD and OSM for the proposed mine. Accordingly, OSM, BLM and MMD are preparing this supplemental EIS, taking account of these recent developments to identify and reanalyze the probable impacts of mining and reclamation at Fence Lake.

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CHAPTER 1

INTRODUCTION

CHAPTER 1

INTRODUCTION

A. PURPOSE AND NEED FOR A SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Salt River Project Agricultural Improvement and Power District (SRP) of Phoenix, Arizona, proposes to develop a surface coal mining operation in west-central New Mexico approximately 14 miles north of the town of Quemado. The proposed coal mining operation would be serviced by a 44-mile railroad corridor, which SRP also proposes to develop, that would connect the mine to the Coronado Generating Station near St. Johns in Apache County, Arizona. SRP has submitted a complete permit application package (PAP) to New Mexico Mining and Minerals Division (MMD) and to the Office of Surface Mining Reclamation and Enforcement (OSM). The PAP includes a proposed life-of-mine mining plan and other information necessary for the agencies to make decisions regarding the issuance of permits to conduct coal-mining and reclamation operations at SRP's proposed Fence Lake mine in Catron and Cibola Counties, New Mexico, and to construct and operate the proposed railroad corridor that would extend into Apache County, Arizona.

SRP holds coal leases for 6,442 acres of Federal mineral estate contained within the proposed life-of-mine area for the Fence Lake mine. SRP has met all the terms of its coal leases and has submitted the PAP pursuant to the State of New Mexico's Coal Surface Mining Commission (CSMC) Rule 80-1, OSM's Federal program for the State of Arizona (30 CFR Part 903), the Surface Mining Control and Reclamation Act of 1977, as amended (SMCRA), and the Mineral Leasing Act of 1920, as amended (MLA). SMCRA, MLA, and the Department of the Interior's Federal lands cooperative agreement with the State of New Mexico require the Secretary of the Interior to approve, conditionally approve, or disapprove the life-of-mine mining plan for the proposed Fence Lake mine, as this plan relates to the recovery of Federal coal underlying the proposed mine. SMCRA and OSM's Federal program for the State of Arizona authorize the Director of OSM, or his designee, to approve, disapprove, or conditionally approve the permit application for the Fence Lake project as this application pertains to the construction and operation of the Arizona portion of a railroad corridor that would service the proposed mine and that would extend west from it into Arizona. If the Director chooses to approve or conditionally approve the application, SMCRA and OSM's Federal program also authorize OSM to issue a Federal permit to conduct surface coal-mining and reclamation operations along the Arizona portion of this New Mexico/Arizona railroad corridor.

In 1990, after determining that the then pending decision as to whether or not to lease the Federal coal at Fence Lake would constitute a major Federal action pursuant to the National Environmental Policy Act of 1969, as amended (NEPA), BLM prepared an environmental impact statement (EIS) evaluating the proposed Fence Lake project. In its summary of that EIS, BLM stated that (1) the impact assessment the EIS presents is based on a preliminary mining plan that SRP developed for the purposes of analysis of the leasing action at hand and (2) any final mining plan SRP submitted relative to the Fence Lake project could be quite different from this preliminary plan.

In fact, this eventuality has proven to be the case. Since BLM prepared the 1990 EIS, SRP has proposed major changes for the Fence Lake mining plan, new information has been submitted with the PAP, and the public has expressed additional concerns about potential impacts from the project; in particular those potential impacts to Zuni Salt Lake, which is considered a sacred site by a number of Indian tribes.

OSM, BLM, and MMD (hereinafter, "the agencies") have determined that the Federal approval or disapproval of various applications associated with the proposed Fence Lake project would constitute major actions that could significantly affect the quality of the human environment. Accordingly, pursuant to Section 102(2)C of NEPA, OSM, as the lead agency, has further determined that an environmental impact statement (EIS) regarding the project, which would supplement BLM's 1990 EIS, should be prepared. The 1990 EIS is reprinted as volume 2 of this supplemental EIS.

B. THE APPLICANT'S PROPOSAL

SRP's proposed Fence Lake project has two basic elements: (1) the proposed Fence Lake coal mine and the site facilities necessary to operate that mine and (2) a 44-mile railroad corridor that would be associated with the mine and that would be used for delivery of the coal to a power-generating station. The Fence Lake mine would be a new surface coal mine located in west-central New Mexico approximately 14 miles north of the town of Quemado. The mine would be approximately 30 miles east of the Arizona border. The railroad corridor would be approximately 44 miles in length; it would connect the mine with the Coronado Generating Station, which is located approximately 6 miles north of St. Johns, Arizona. SRP currently owns the Coronado Generating Station and would also own the proposed Fence Lake mine and railroad corridor.

The proposed mine would be in operation for approximately 50 years (the "life of the mine")--2 years for premining development, 38 years to recover approximately 81.3 million tons of coal and complete reclamation, and 10 years for bond release. The anticipated coal-production rate during the first 5 years would be 1.8 million tons per year. The anticipated maximum coal-production rate during the life-of-mine would be 3.2 million tons per year. The produced coal would be taken by haul trucks to a coal loadout facility on the minesite, loaded onto rail cars, and transported via one unit-train (a coal train of between 40 and 100 cars that would carry approximately 100 tons of coal in each car) per day to the Coronado Generating Station.

The project area for the proposed mine would involve a total of 18,119 acres, which would consist of 16,813 acres in the mine permit area and 1,306 acres in the railroad corridor. Federal coal deposits underlie approximately 6,442 acres, or 38 percent, of the minesite permit area.

Activities to be conducted at the proposed mine would be separated into two phases--(1) the facilities-development phase and (2) the mining and reclamation phase. The facilities-development phase would consist of the construction of a mine-facilities complex, access and primary haulroads, a dragline erection site, powerlines, the railroad corridor and loop, and drainage and sediment control structures. This phase would occur in two stages: during the first year of the initial 5-year permit term the mine site facilities would be developed resulting in the disturbance of 98 acres; and during the first two years of the permit the construction of the railroad corridor would disturb an additional 547 acres. The mining and reclamation phase would consist of the construction of ancillary and primary roads, the removal of overburden, the loading and hauling of coal, the reclamation of disturbed areas, and the construction of drainage and sediment-control structures. These activities would disturb approximately 565 acres during the initial 5-year permit term. During the remaining 35 years of active mining, surface mining and reclamation activities would disturb an additional 7,222 acres.

The project's total disturbed area would consist of 8,432 acres, 547 of these acres being disturbed in the transportation corridor and 7,885 acres being disturbed in the minesite permit area proper. See appendix A for a description of the Fence Lake project.

C. ROLES OF FEDERAL AND STATE AGENCIES IN PROJECT APPROVAL

A number of agencies must issue permits or other approvals before various construction and operation activities associated with the Fence Lake project could begin (see Table 1-1, BLM draft EIS). The primary Federal and State authorizing actions would be:

- The Secretary of the Interior (through his designee, the Assistant Secretary of the Interior for Land and Minerals Management) must issue a Federal mining-plan approval before SRP could begin any active coal-mining operations to recover Federal coal reserves underlying the proposed Fence Lake mine permit area.

- MMD must issue a State permit to conduct surface coal-mining and reclamation operations before SRP could begin any active coal-mining operations (1) to recover Federal, State or private coal reserves underlying the proposed Fence Lake mine permit area or (2) along the New Mexico portion of the proposed New Mexico/Arizona railroad corridor that would service that mine.

- The Director of OSM, or his designee, must approve the permit application pertaining to, and OSM must issue a Federal permit to conduct surface coal-mining and reclamation operations in Arizona before SRP could begin any active construction operations along the Arizona portion of the proposed New Mexico/Arizona railroad corridor.

- The U.S. Environmental Protection Agency has received an application from SRP requesting a National Pollution Discharge Elimination System (NPDES) permit for wastewater discharge under Section 402 of the Clean Water Act and must make a decision regarding the issuance of this permit associated with the construction of sedimentation ponds.

- The New Mexico State Land Office must issue State rights-of-way before SRP could begin constructing the proposed railroad corridor or powerline on State land in New Mexico.

Certain Federal and State agencies have made their authorizing actions and issued the following permits or other approvals associated with the Fence Lake project:

- The U.S. Army Corps of Engineers on March 6, 1995 issued a Section 404 permit for the Fence Lake project, which SRP had to obtain before beginning any activities affecting waters of the United States as qualified under Section 404 of the Clean Water Act of 1977.
- The BLM on February 16, 1995 issued Federal Temporary Use Permit AZA-2829501 and Right-of-Way Grant AZA-28295 to SRP that would allow construction of the proposed railroad corridor and powerline across a parcel of Federal land the BLM administers in Arizona, provided other necessary approvals and authorizing permits are also obtained.
- The Arizona State Land Office on November 18, 1994 issued 50-year Right-of-Way Lease No. 14-99890 to SRP that would allow construction of the proposed railroad corridor and powerline on State land in Arizona, provided other necessary approvals and authorizing permits are also obtained.

Copies of SRP's PAP are available for public review during normal working hours at OSM's Western Regional Coordinating Center, 1999 Broadway, Suite 3320, Denver, Colorado; OSM's Albuquerque Field Office, 505 Marquette Avenue N.W., Suite 1200, Albuquerque, New Mexico; MMD's Office, 2040 South Pacheco, Santa Fe, New Mexico; BLM-Socorro Resource Area Office, 198 Neel Ave., N.W., Socorro, New Mexico; BLM-Farmington Resource Area Office, 1235 La Plata Highway, Farmington, New Mexico; the U.S. Post Office in Quemado, New Mexico; the Catron County Courthouse in Reserve, New Mexico; and the Apache County Court House in St. Johns, Arizona. Copies of the PAP have also been made available to the following Indian Tribes that expressed an interest in receiving it: the Hopi Tribe, the Pueblo of Acoma, the Pueblo of Zuni, and the Ramah Navajo Chapter.

D. THE ENVIRONMENTAL IMPACT STATEMENT

Pursuant to the President's Council on Environmental Quality (CEQ) and NEPA guidance, BLM's original 1990 EIS and this supplemental EIS identify and analyze the probable impacts to the quality of the human environment that would result should SRP receive all necessary permits and approvals and subsequently undertake these activities it has described as constituting its proposed project. CEQ regulations at 40 CFR 1502.9(c)(1)(ii) provide that agencies shall prepare supplements to either draft or final environmental impact statements if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. Also, CEQ regulations at 40 CFR 1508.27 specify that "significantly" as used in NEPA requires considerations of both context and intensity. Furthermore, CEQ regulations at 40 CFR 1508.27(b)(4) and (8) specify that the following criteria should be considered in evaluating intensity: (1) the degree to which the effects on the quality of the human environment are likely to be highly controversial, and (2) the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. The agencies have evaluated significance relative to the proposed Fence Lake action in accordance with these CEQ specifications and have determined that both the amount of new information relevant to environmental concerns and the level of public controversy regarding the proposed action warrant the preparation of a supplemental EIS. In the interest of providing the public with all pertinent information that was used to analyze the proposed action, the agencies have reproduced the BLM's 1990 EIS in its entirety as volume 2 of this supplemental EIS.

The supplemental EIS provides decision-makers with information upon which to base a final decision that is fully informed and considers all factors relevant to the Fence Lake proposal. Preparation of the supplemental EIS helps ensure that the proposed operations are well planned, that the major environmental impacts of the proposed actions and their reasonable alternatives are analyzed, and that concerns of agencies, organizations, and citizens are adequately considered (Council on Environmental Quality, 1978; 40 CFR Part 1500).

OSM has been the lead agency responsible for the management of the supplemental EIS process, including facilitating public involvement and preparation of the EIS. MMD, BLM, and the U.S. Environmental Protection Agency (EPA), as other agencies possessing special expertise or jurisdiction by law, have participated as formal cooperating agencies in the development of the EIS. Cooperating agencies have been responsible for participating in the EIS scoping process and providing specific comments on those aspects of the impact analysis within their expertise or under their jurisdiction (Council on Environmental Quality, 1978: 40 CFR 1501.6). BLM and MMD have actively participated in the writing of this supplemental EIS, whereas EPA has contributed in a review and comment capacity. Evaluation of the applicant's proposals, including the reasonable alternatives, has been conducted through an interdisciplinary review with representatives from a variety of State and Federal agencies concerned with the proposal.

This supplemental EIS is not a decision document. As mentioned above, it is the result of a comprehensive process used to document what will be the probable effects of implementing the applicant's proposal or reasonable alternatives to it. Agency decisions regarding the proposals will be released in decision documents prepared by the responsible Federal officials. BLM and Department of the Interior decisions will relate only to the applicant's ability to comply with the Federal Land Policy and Management Act of 1976, as amended (FLPMA), SMCRA, MLA, the New Mexico rules issued pursuant to SMCRA, and OSM's Federal program for Arizona. Decisions by other jurisdictions to issue or not to issue approvals related to the applicant's proposal may be aided by the disclosure of impacts available in this analysis. Other Federal agencies may adopt this supplemental EIS or portions thereof for their own use, subject to the provisions of the CEQ regulations (Council on Environmental Quality, 1978; 40 CFR 1506.3). Those agencies retain the right to require further environmental information or analysis.

E. SCOPE OF THE EIS ANALYSIS

CEQ regulations define the scope of an EIS as "the range of actions, alternatives, and impacts to be considered." Agencies are initially directed to "tier" from program, policy, or planning documents and/or EIS's "of broad scope to those of narrower scope, to eliminate repetitive discussions" and to help the agencies "focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe" (Council on Environmental Quality, 1978; 40 CFR Parts 1500 to 1508). Environmental issues have been excluded from the scope of analyses contained in this supplemental EIS because they involve actions that have been previously evaluated or decisions that have already been made, as follows:

- The Department of the Interior has evaluated environmental issues associated with the leasing and subsequent development of Federal coal in general in the United States in the final EIS on the proposed Federal Coal Leasing Program (U.S. Department of the Interior 1975), the final EIS on the Federal Coal Management Program (U.S. Department of the Interior 1979), and the final supplemental EIS on the Federal Coal Management Program (U.S. Department of the Interior 1985).

- BLM has evaluated issues associated with land use decisions for BLM-administered Federal lands in the area west of Socorro, New Mexico, in the final EIS on the Proposed Resource Management Plan-West Socorro Resource Area (BLM 1988), and in the final EIS on the West Socorro Rangeland Management Program (BLM 1982 and Annual Updates).

- BLM has evaluated environmental issues associated with the leasing of coal to SRP for its proposed Fence Lake mine in the final EIS on the Fence Lake project (Bureau of Land Management 1990), and a Federal decision to approve the leasing of these coal reserves for future development already has been made.

- The Bureau of Reclamation has evaluated environmental issues associated with the operation of the Coronado Generating Station near St. Johns, Arizona, in the final EIS on the Coronado Generating Station (Bureau of Reclamation 1977) and a Federal decision to approve the operation of this station has been made.

In accordance with the President's Executive Order 12898 of February 11, 1994 concerning Federal actions to address environmental justice, the agencies considered during the planning and scoping stages of this supplemental EIS whether or not the proposed project could be expected to have any impacts on minority or low-income populations. The agencies determined that impacts from the proposed project could affect certain resources associated with various Indian tribes/Native American communities even though no Indian Lands would be included in the project area. Those impacts are analyzed and evaluated in chapter 4, particularly in the cultural resources and hydrology sections. Resources on the nearest Indian Lands would experience negligible impacts from the proposed project. Extensive mitigative measures have been developed for impacted resources on Federal, State, and private land within the proposed project area that are of concern to Indian Tribes/Native American communities. See "Other Impacts" and "Summary and Conclusions" in chapter 4, section C-8. Given these circumstances, the agencies have concluded that the proposed project would have negligible direct or indirect impacts on Indian Tribes/Native American communities.

The agencies prepared this supplemental EIS for the specific purpose of analyzing the probable site-specific and cumulative impacts to the human environment (1) that would result from implementing the Fence Lake project as proposed and (2) that BLM had not previously identified and analyzed in its 1990 EIS. Site-specific analyses in the supplemental EIS address the direct and indirect impacts that would result from proposed development, operation, and reclamation activities associated with the project, both on and off sites targeted for disturbance, over the Fence Lake mine's proposed 50-year life. Cumulative analyses address the collective impacts that would result from developing the proposed project in conjunction with other past, present, and reasonably foreseeable future development projects in west-central New Mexico and east-central Arizona (see appendix B).

In order to perform these analyses, the agencies have made certain assumptions about Federal and State actions. Chapter 4 of this supplemental EIS gives a complete list of these assumptions; however, the agencies would emphasize that the assumptions were made for the purpose of analysis only and are not intended to be a final projection of future activities that may or may not materialize in and around the Fence Lake project area over the proposed 50-year life of the Fence Lake mine. Appendix A gives specific details of the proposed Fence Lake project, including the proposed Fence Lake mine and the support activities that would be associated with the production and delivery of coal mined there. Appendix B provides a description of the projects (other than Fence Lake) considered in the cumulative analyses. Appendix C contains a supplemental bibliography. Appendix D contains the Programmatic Agreement developed for the identification, evaluation, and treatment of historic properties affected by the proposed Fence Lake project. Appendix E contains the public comments that were received about the draft supplemental EIS and the agencies' responses to those comments.

F. GEOGRAPHICAL LIMITS

The geographical limits for the analysis of probable impacts in this supplemental EIS primarily encompass the proposed life-of-mine area and railroad corridor, which includes approximately 18,119 acres. However, impacts to areas beyond the permit boundary are also considered to the extent that pertinent data are available and the resulting potential impacts would be relevant. Where larger geographical limits were established to allow for required analyses and assessment of impacts, a description follows:

- Hydrology - The surface-water study area lies entirely within the Little Colorado River drainage basin. It includes Largo Creek, the trunk stream in the region, and its feeder stream Carrizo Wash. The watersheds captured by Nations Draw, which drains over 200 square miles, and Lopez Draw are also included within the limits of the analysis. The ground water-study area encompasses four aquifers contained within the Nations Draw and Lopez Draw drainage basins: the Quaternary Alluvium and the Atarque, Moreno Hill, and Dakota formations. Both the surface- and ground-water study areas include the Zuni Salt Lake.

- Wildlife - The study area includes the Zuni Salt Lake and a buffer zone that varies in width depending on the species under consideration, but is generally one-mile wide on all sides of the proposed mine permit area and railroad corridor.

- Esthetics - For noise and visual resources, the study area includes the proposed mine permit area and railroad corridor together with a buffer zone around those areas that varies from one to three miles depending on topography and type of mine related facilities/activities. For visual resources, the analysis considered a direct-line-of-sight to mine-related facilities/activities.

- Socioeconomics - The primary study area is Catron County, New Mexico, where the proposed mine permit area and 30 miles of the railroad corridor would be located. The secondary study area is the southern portion of Apache County, Arizona, where 13 miles of the railroad corridor would be located; and the southern portion of Cibola County, New Mexico, which would include approximately 280 acres of the mine permit area. The principal cities encompassed by the socioeconomic study area are Reserve, Grants, Milan, Eagar, St. Johns, and Springerville.

- Cultural resources - The primary study area is the proposed mine permit area and railroad corridor, but the cultural resource analysis also includes the Zuni Salt Lake and the salt trails interpolated as crossing the proposed mine permit area and railroad corridor.

- Transportation - The study area is bounded by existing road systems and the proposed railroad corridor in Catron County, New Mexico and Apache County Arizona. Roadway segments defining the study area are: U.S. Highway 60; U.S. Highway 180/666; Apache County Road 6040; Catron County Roads A001, A009, and A012; Hubbell Ranch Road; and New Mexico Highways 36 and 60.

G. ISSUES RELATING TO THE PROPOSED ACTION

The public identified numerous impact topics regarding the proposed Fence Lake project during the scoping activities for this supplemental EIS (see chapter 5 for a complete discussion of the public-participation process). To the extent that they were relevant to the proposed project and within the scope of the EIS analysis, the agencies evaluated the topics during the impact-analysis portion of the EIS process. In addition, the agencies supplemented the public's list with additional topics identified by both the EIS interdisciplinary team and agency management. The complete analysis of impact topics is found in chapter 4. The impact topics are as follows:

- Air Quality--Impacts from fugitive dust produced during coal-mining operations by such sources as trucks hauling along haul roads and railroad cars hauling along the proposed railroad corridor; blasting activity; wind erosion of exposed surface areas, storage piles, and spoil piles; reclamation operations; and other activities in which material is either removed, stored, transported, or redistributed.
- Topography--Impacts to the original contour of the land, including existing bluffs, buttes and rolling land surfaces, from mining; impacts to topography from construction of the railroad corridor.
- Geology--Impacts to geologic strata from mining to remove 81.3 million tons of coal and construction to establish mine facilities, roads, and the railroad corridor.
- Paleontology--Impacts to paleontological resources from mining and construction to establish mine facilities, roads, and the railroad corridor.
- Soils--Impacts to the biological, chemical, and physical characteristics of the soil, as well as soil productivity from topdressing removal, storage, and replacement.
- Hydrology--Impacts from mining and the creation of impoundments and diversions, to surface water quantity and quality, drainage patterns, and infiltration rates, including potential impacts to Zuni Salt Lake, Largo Creek, Nations Draw, Carrizo Wash, and ranch wells; impacts from mining to ground-water quantity and quality, including the hydraulic characteristics of the alluvium, the coal aquifer, the Tejana Sandstone, the Atarque Sandstone, and the Dakota Sandstone.
- Vegetation--Impacts to vegetation communities--including those found in wetland areas, as well as any threatened and endangered plant species--from the creation of mine pits, diversion ditches, roads, ponds, and the transmission line right-of-way and from the construction of mine facilities and the railroad corridor.
- Wildlife--Impacts to raptors and other nesting birds on the minesite and along the railroad corridor.
- Land use and recreation--Impacts to grazing and recreational and other land uses both during and after active mining and the construction of the railroad corridor.

- Esthetic resources--Impacts to views as a result of dust and visibility impairment, vegetation clearance, landform modification, the use of lights, dragline and ancillary facility visibility, the general appearance of the mine area, and construction of the railroad corridor; and impacts to noise values as a result of haulroad/railroad operations and blasting/dragline operations.

- Socioeconomics--Impacts to employment and income for the communities within the Fence Lake project area; impacts to the demand for local resources such as housing, public services, and commercial services; impacts to State and local fiscal conditions.

- Cultural resources--Impacts from mining and construction to establish mine facilities, roads and the railroad corridor to traditional cultural properties, ethnohistoric properties, archaeological sites, historic sites, and sites that might contain burials.

- Transportation--Impacts to traffic volume and location of roads within the existing road system; impacts to local traffic and land use from operation of the railroad corridor.

H. PUBLIC ISSUES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

The public identified several additional impact topics during scoping activities for this supplemental EIS, but the agencies are not addressing these topics for a variety of reasons. CEQ specifically directs Federal agencies to reduce excessive paperwork by "[u]sing the scoping process, not only to identify significant environmental issues deserving of study, but also to de-emphasize insignificant issues, narrowing the scope of the [EIS] process accordingly" [40 CFR 1500.4(g)]. A list of these topics, along with the agencies' rationale for dismissing them from further analyses as environmental issues not deserving of study, is included in chapter 5.

CHAPTER 2

ALTERNATIVES

CHAPTER 2

ALTERNATIVES

This supplemental EIS evaluates two prospective actions that constitute the range of reasonable alternative decisions regarding the various plans of operation that would be associated with SRP's proposed Fence Lake project, including the proposed Fence Lake mine and associated ancillary facilities.

A. DESCRIPTION OF THE ALTERNATIVES ANALYZED

1. Alternative 1: Approval, With Conditions, of the Life-of-Mine Mining Plan as it pertains to the Recovery of Federal Coal and the Permit Application as It Pertains to the Arizona Portion of SRP's Proposed Railroad Corridor (the Preferred Alternative).

Under this alternative, and subject to conditions the agencies identify, the Assistant Secretary of the Interior for Land and Minerals Management would approve the applicant's life-of-mine mining plan as it pertains to the recovery of Federal coal at the proposed Fence Lake mine and the Director of OSM, or his designee, would approve the applicant's permit application as it pertains to the Arizona portion of the proposed railroad corridor. The proposed Fence Lake project in its entirety is summarized in appendix A. Approval would mean that any permit issued by the State of New Mexico MMD would include standard permit conditions required by CSMC Rule 80-1 of the State of New Mexico surface coal mining regulations and any permit issued by OSM would include standard permit conditions required by 30 CFR 903 of OSM's Federal program for Arizona. Approving the proposed Fence Lake life-of-mine mining plan, and the Fence Lake permit application as it pertains to the construction and operation of a railroad transportation corridor that would service the proposed mine, would make available for mining 6,442 acres of Federal coal, 8,891 acres of State coal, and 1,620 acres of private coal. According to the mining plan, approximately 8,432 acres of private, State and Federal surface area would be disturbed overall by mining and support facilities at the Fence Lake mine and by the railroad corridor. Approximately 547 acres would be disturbed by the railroad corridor alone. Coal production would total about 81.3 million tons over the life-of-the-mine.

2. Alternative 2: Disapproval of the Life-of-Mine Mining Plan as It Pertains to the Recovery of Federal Coal and the Permit Application as It Pertains to the Arizona Portion of SRP's Proposed Railroad Corridor.

Under this alternative, the Assistant Secretary for Land and Minerals Management would disapprove the applicant's life-of-mine mining plan as it pertains to the recovery of Federal coal at the proposed Fence Lake mine and the Director of OSM, or his designee, would disapprove the applicant's permit application as it pertains to the Arizona portion of the proposed railroad corridor. The Assistant Secretary's and the Director's rationale for disapproval would be that these plans (1) did not meet the requirements of all applicable Federal and State laws and/or (2) would or could impose unacceptable impacts on the human environment. Under this disapproval alternative, it is assumed that if the Arizona portion of the railroad corridor could not be utilized and Federal coal could not be mined, then there also would be no mining of State and private coal and no mining activity whatsoever would occur. For the purposes of this EIS, the agencies consider the "no-action" alternative to be equivalent to disapproval of the applicant's proposal.

B. OTHER ALTERNATIVES CONSIDERED

During preparation of this supplemental EIS, both the public and the agencies considered several other alternative Federal actions with respect to SRP's Fence Lake project but eliminated them from analysis for a variety of reasons. CEQ specifically directs Federal agencies to reduce excessive paperwork by using scoping activities to narrow the scope of the EIS process [40 CFR 1500.4(g)]. It points out that the range of alternatives discussed in an EIS includes all reasonable alternatives as well as other alternatives that are eliminated from detailed study. Reasonable alternatives include those that seem practical or feasible from a technical and economic standpoint, as evaluated on the basis of common sense, rather than simply desirable from the standpoint of the applicant. (46 FR pp. 18026-27). The alternatives the agencies considered but eliminated from further, detailed analysis are:

- **The alternative of mining State and private coal if the Federal actions were disapproved.** -- Based on the preliminary mine plan prepared for the BLM draft EIS (1990), the BLM concluded that mining of State and private coal would be economically feasible if the Federal leases were disapproved. Therefore, the mining of State and private coal was included in the BLM's Lease-Disapproval Alternative [see page 2-15 of the BLM draft EIS (Supplemental EIS, Volume II)]. The agencies considered this alternative for the supplemental EIS analysis, but determined that subsequent developments related to the project proposal would probably make the mining of State and private coal economically unfeasible if the Federal mine plan and permit applications were disapproved. Specifically, since the PAP proposes a railroad corridor that would be regulated by OSM in Arizona, disapproval of the Federal actions would mean that the corridor could not be used for transporting coal to CGS. This alternative would then entail the utilization of the existing road network for the transportation of coal, which would require (1) upgrading and maintaining a variety of existing roads, including the conversion of some existing roads that are nearly impassable in bad weather to "all-weather" roads; (2) constructing bridges capable of supporting coal-haulage trucks; (3) maintaining a fleet of haulage trucks and a staff of workers to operate them; and (4) hauling coal approximately 25 additional miles if trucks were used on the existing road network. This alternative would also involve a less efficient mining unit since 6,442 acres of Federal coal, or approximately 44 percent of the recoverable coal reserves at Fence Lake, would be excluded from mining. Altogether, the cumulative cost of these conditions would make implementing such an alternative uneconomical and impractical. However, if only the life-of-mine mining plan was disapproved and the railroad corridor was approved, and

SRP decided to mine State and private coal, the environmental impacts would be only slightly less than if Federal coal were included since it would require virtually the same support facilities, railroad construction, and a mining plan similar to that which is already analyzed in Alternative 1. Therefore, no further consideration was given to this alternative.

- Approval of alternatives to the leasing and development of coal resources. -- The consideration, much less the approval, of such alternatives would be inappropriate in the present case because SRP already holds active Federal leases for the coal resources at the Fence Lake minesite. The BLM's Record of Decision (ROD) for the Fence Lake Project Federal Coal Lease (December 1990) states that part of the basis for the decision to approve the Federal coal leases was "...the need to provide energy mineral resources (coal) for public use." Therefore, the agencies did not further analyze alternatives to the leasing and development of these resources.

- The no-action alternative. -- A decision by the Secretary of the Interior on whether or not to approve the life-of-mine mining plan is required by the Mineral Leasing Act (MLA). The impacts to the human environment of implementing the no-action alternative would be the same as those of disapproving the proposal (alternative 2). Thus, for the purpose of this supplemental EIS, the agencies consider these alternatives to be equivalent and so did not further analyze the no-action alternative.

C. COMPARISON OF ALTERNATIVES

Table 2-1 on the following page gives a comparative summary, by discipline, of all the impacts that the analyses in chapter IV describe as likely to evolve from implementing either alternative 1 or 2. The more important impacts of implementing the alternatives would be:

Alternative 1 (Approval with Conditions).--Under the life-of-mine mining plan and permit application approval alternative, the residual impacts of mining at Fence Lake and operation of the railroad corridor would involve the following resources:

- Air quality and visibility would be impacted to a minor extent, with some degradation for the short term in the mine area and along the railroad corridor; long-term impacts to the resource would be negligible.

- Topography and geology would be altered in the mine area. This would constitute a moderate to major short-term impact, and a minor long-term impact. The railroad corridor would experience minor short-term and negligible to minor long-term impacts to topography and geology. Impacts to soil productivity would be minor for the short-term and negligible for the long-term.

- Surface water quantity and quality would be subject to negligible short- and long-term impacts. Ground water quantity and quality would be subject to minor short-term and negligible long-term impacts. Zuni Salt Lake would experience negligible short and long-term impacts to the quantity and quality of its ground water.

- Impacts to grassland vegetative communities would be moderate and short-term. General wildlife species' diversities and populations would be subject to short-term negligible to minor impacts and negligible long-term impacts. Loss of sparsely wooded juniper-blue grama habitat would be long-term and generally moderate.

- Grazing impacts would be negligible in the long term as a consequence of reclamation. Impacts to recreation and scenic quality in the project area would be minor and long-term. Noise impacts would be minor for the short-term and negligible for the long-term.

- Impacts on local employment would be moderate to major and short-term; impacts on county fiscal conditions would also be moderate to major. Impacts of excessive demands on local public services and housing would be minor and short-term.

- Impacts to cultural resources would be moderate to major, and some could be long-term. Salt-gathering trails, particularly the Acoma Trail, would be subject to major impacts during the short-term life-of-mine, but the impacts would become moderate and long-term after mitigation and reclamation. Impacts to specific cultural sites would be moderate to major and long-term.

- Land use would be subject to moderate short-term impacts during the life-of-mine. Long-term impacts to land use would be negligible. Transportation resources would experience short-term moderate impacts, with a short-term potential to become major, and long-term minor impacts with the conversion of the railroad corridor to a permanent road.

Alternative 2 (Disapproval).--Under the life-of-mine mining plan and permit application disapproval alternative, the residual impacts from not mining at Fence Lake or operating the railroad corridor would include:

- Negligible impacts on air quality, topography, geology, paleontology, soils, vegetation, wildlife, land use and recreation, visual resources, noise, and transportation for both the long- and short-term. Any impacts that did occur would result from the collection of base line environmental information that has already taken place in the proposed Fence Lake Project area.

- Negligible to minor short-term impacts to identified/tested archaeological sites in the project area owing to the cultural resource inventory conducted prior to the submittal of the permit application package. This would also entail the potential for short-term negligible to minor impacts to sites from vandalism. There would be negligible short-term impacts to salt trails, burial sites, and undiscovered sites. All long term impacts to cultural resources would be negligible.

- Major short- and long-term impacts to socioeconomic resources resulting from the loss of jobs, personal income, business activity, and tax revenue expected to be generated by the development of the proposed mine and railroad corridor. Disapproval would mean the loss of approximately 160 temporary construction job opportunities, with an associated payroll of $1.5 million, and the loss of permanent employment over the 38-year production life of the mine with an estimated payroll of $4.7 million per year. This would have a major short- and long-term impact on the economic base of Catron County, where the proposed Fence Lake mine would have become the largest single source of wage and salary income in the County. Impacts to Cibola and Apache Counties would be minor to moderate in the short term and negligible to minor in the long term because of the potential employment opportunities that would be lost with disapproval of the proposed project. However, there would be a minor beneficial impact over the short term to public services and housing within the project area that would not experience an increased level of demand placed upon them with project disapproval.

TABLE 2-1.--COMPARATIVE SUMMARY OF IMPACTS[1]

Resource	Alternatives Evaluated Approval of the applicant's proposal, with conditions (the preferred alternative)	Disapproval of the applicant's proposal
Air quality	Short-term minor impacts at the coal mine and railroad corridor. Expected offsite PM_{10} concentration of around 10 micrograms, activity during mining added to the background concentration of around 15 micrograms, this concentration would increase PM_{10} concentrations around the mine to 25 micrograms, which is well below the national ambient air quality standard of 50 micrograms for PM_{10}. Long-term impacts at the coal mine and railroad corridor would be negligible.	Negligible impacts.
Climatology	Short- and long-term negligible impact.	Negligible impacts.
Meteorology	Short- and long-term negligible impact.	Negligible impacts.
Topography	Short-term moderate to major changes in topography for 7,885 acres in the minesite permit area. Long-term minor impacts to topography in the minesite permit area. Short-term minor changes in topography for 547 acres in the railroad corridor. Long-term negligible to minor impacts to topography along the railroad corridor.	Negligible impacts.
Geology	Short- and long-term minor impacts in the geologic formations and lithology to a depth of 200 feet for approximately 7,885 acres in the minesite permit area; 676 million bank cubic yards of overburden removed and backfilled. Short-term minor impacts on geology from construction of the railroad corridor. Long-term minor to moderate impacts on geology from construction of the railroad corridor.	Negligible impacts.
Paleontology	Short- and long-term minor impacts to paleontological resources over the 8,432 acres in the minesite permit area and transportation corridor. An unanticipated discovery could have a long-term impact that is beneficial to science.	Negligible impacts.

TABLE 2-1.--COMPARATIVE SUMMARY OF IMPACTS[1]

	Alternatives Evaluated	
Resource	Approval of the applicant's proposal, with conditions (the preferred alternative)	Disapproval of the applicant's proposal
Soils	Short-term minor impacts to soil productivity from the removal and replacement of 6.5 million cubic yards of topdressing material during the life-of-mine operations. Long-term negligible impacts to soil productivity.	Negligible impacts.
Surface water	Short- and long-term negligible impacts to surface-water quality and quantity from the proposed 9 diversions and 23 impoundments over the life-of-mine operations and the construction of the railroad corridor.	Negligible impacts.
Ground water	Short-term minor impacts to the quantity and quality of ground water over the life-of-mine operations; short and long-term negligible impacts to the quantity and quality of ground water over the life-of-mine operations; short- and long-term impacts would be negligible to the quantity and quality of Zuni Salt Lake ground water.	Negligible impacts.
Vegetation	Short- and long-term minor to moderate impacts to vegetation until disturbed areas are revegetated; short-term moderate impacts to wetlands; long-term negligible impact to wetlands as a consequence of SRP's commitment to replace disturbed half-acre of wetlands one to one. Because habitat does not exist within the disturbance areas for the twelve sensitive threatened or endangered plant species that could be affected by mining in the vicinity of Fence Lake, short- and long-term impacts to these species would be negligible.	Negligible impacts.
Wildlife	Short-term minor impacts to raptors in and around the active mining area and the railroad corridor; long-term negligible impacts to raptors. Short- and long-term negligible impacts to wildlife within Zuni Salt Lake and the surrounding area. Short- and long-term negligible impacts to threatened and endangered animal species within and around the active mining area and the railroad corridor.	Negligible impacts.

TABLE 2-1.--COMPARATIVE SUMMARY OF IMPACTS[1]

Resource	Approval of the applicant's proposal, with conditions (the preferred alternative)	Disapproval of the applicant's proposal
	Alternatives Evaluated	
Land use	Impacts to land use would be moderate over the short term and negligible over the long term; they would persist until the reclaimed land was released back to the postmining use of livestock grazing.	Negligible impacts.
Recreation	Short- and long-term impacts to recreation are expected to be negligible to minor, because recreation is informal and dispersed throughout the minesite permit area and railroad corridor.	Negligible impacts.
Esthetics		
Visual resources	Short-term moderate to major visual impacts at the mine permit area would include disruption of views as a result of dust and visibility impairment, vegetation clearance, landform modification, use of lights, dragline and ancillary-facility visibility, and general appearance. Construction and operation of the railroad corridor and 69 kV powerline would produce short- and long-term minor impacts. The mine permit area would have long-term negligible visual impacts based on the ultimate appearance of the landscape after reclamation by restoring approximate original contours and revegetating the mined areas. Conversion of the railroad to a permanent road would result in long-term minor impacts.	Negligible impacts.
Noise	Short-term minor impacts from noise at the minesite; long-term negligible impacts from noise at the minesite. Short-term minor impacts from noise within the railroad corridor; long-term negligible impacts from the permanent road.	Negligible impacts.

TABLE 2-1.--COMPARATIVE SUMMARY OF IMPACTS[1]

	Alternatives Evaluated	
Resource	Approval of the applicant's proposal, with conditions (the preferred alternative)	Disapproval of the applicant's proposal
Socioeconomics	Short- and long-term major beneficial impact for employment opportunities; estimated construction workforce would ultimately reach a temporary peak of about 160 persons with a cumulative payroll of $1.5 million; operation of the mine over 38 years would require a workforce numbering between 74 and 134 workers, having a short and long-term beneficial impact on local employment; operation of the railroad would have a short- and long-term negligible impact as it would employ only about 10 persons; short and long-term moderate impacts to services and goods within the vicinity of the project area; owing to the increased collection of royalties, as well as property and other local taxes, the impacts to the tax base would be beneficial over both the short- and long-term.	Short and long-term major impact to employment opportunities; loss of approximately 160 temporary construction job opportunities and an associated payroll of $1.5 million; short and long-term major impacts to permanent employment over the 38-year production life-of-mine; short and long-term minor beneficial impact to public services and housing within the vicinity of the project area; short and long term major impact from loss of royalties, as well as property and other local taxes.
Cultural resources	Short- and long-term moderate impacts to identified/mitigated archaeological sites (382 out of 595 such sites could be affected); short and long-term potential for major impacts on undiscovered sites; short and long-term major impacts to the Acoma Salt Trail, and negligible to minor short and long-term impacts to other salt trails; short and long-term moderate impacts to burial sites if located; minor short and long-term impacts to sites from vandalism.	Short-term negligible to minor impacts to identified/testedarcheological sites for the cultural resource inventory conducted prior to submittal of the permit application package; no impacts on undiscovered sites; no impacts to salt trails; no impacts to burial sites; short-term negligible impacts to sites from vandalism.
Transportation	Short-term moderate impacts on roads accessing the mine from increased traffic attributable to the Fence Lake mine, with the potential to become a short-term major impact. Long-term minor impacts to the existing road network. Short-term minor impacts from the coal train traffic; long-term minor impacts to the local and regional transportation resources from the conversion of the railroad to a permanent road.	Negligible impacts.

[1] The intensity of impacts is as follows: Negligible - ranging from immeasurable and undetectable to lower levels of detection. Minor - detectable, but slight. Moderate - readily apparent environmental effects. Potential to become major - potentially severe adverse or exceptional beneficial environmental effects. Major - severe adverse or exceptional beneficial environmental effects. The duration of impacts is as follows: Short term - life of the mine, including the reclamation period. Long term - after bond release.

CHAPTER 3

THE AFFECTED ENVIRONMENT

CHAPTER 3

THE AFFECTED ENVIRONMENT

A. INTRODUCTION

This chapter contains a supplement to the overview of environmental resources in the Fence Lake project area that was presented in chapter 3 of the BLM draft EIS prepared in May 1990 and in chapter 2 of the BLM final EIS prepared in September 1990 (Supplemental EIS, Volume II). If, subsequent to the preparation of the BLM draft and final EIS, substantial new data has been collected or additional studies have been completed on these environmental resources, the additional information is presented in this chapter of the supplemental EIS. However, if the environmental resource information contained in the BLM draft and final EIS has not changed substantially and, for the purposes of this supplemental analysis, provides an adequate description of the affected environment, then an explanation is given in the applicable section of this chapter. This supplemental EIS is intended to be used in conjunction with the BLM draft and final EISs' information and analysis, which has been republished here as Volume II of the supplemental EIS.

B. CLIMATOLOGY, METEOROLOGY, AND AIR QUALITY

The climatological, meteorological, and air quality information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM (May 1990) has not changed significantly and, for the purposes of this supplemental analysis, provides an adequate description of the affected environment. This information includes onsite data collected since 1984. Subsequent onsite data collected between 1990 - 1992 confirms the information presented in the draft EIS as being representative of the proposed project area. See page 3-2 of the BLM draft EIS (Supplemental EIS, Volume II).

C. EARTH RESOURCES

1. Topography

The topographical information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM (May 1990) has not changed substantially and, for the purposes of this supplemental analysis, provides an adequate description of the affected environment. See page 3-9 of the BLM draft EIS (Supplemental EIS, Volume II).

2. Geology

The geological information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM (May 1990) and in chapter 2 of the Fence Lake Project final EIS prepared by the BLM in September 1990 has not changed substantially and, for the purposes of this supplemental analysis, provides an adequate description of the affected environment. See page 3-9 of the BLM draft EIS and pages 2-5 and 2-6 of the BLM final EIS (Supplemental EIS, Volume II).

3. Paleontology

The paleontological information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM (May 1990) has not changed substantially and, for the purposes of this supplemental analysis, adequately describes the affected environment. See page 3-17 of the BLM draft EIS (Supplemental EIS, Volume II).

4. Soils

The Fence Lake Project draft EIS prepared by BLM (May 1990) discussed soils based upon a literature review, and consultation with SRP, BLM, and the Soil Conservation Service (SCS)[1]. See page 3-17 of the BLM draft EIS (Supplemental EIS, Volume II). Since 1990, SRP contracted for a detailed Order 2 soil survey of approximately 6,000-acres of the Fence Lake mine area that was completed in October, 1992. A 400-acre area surrounding Garcia Lake in the eastern part of the mine area was surveyed in August, 1988 (cited in the BLM draft EIS). In addition to completing a detailed soil survey for the mine area, a soil survey of the transportation corridor was completed in 1992. Soil samples from 27 locations, representing typical soils, were collected and analyzed in conjunction with the soil survey work.

The objectives of the surveys were to:

- determine the types of soils occurring within the permit area;
- compile the soil types into mapping units and delineate unit boundaries;
- assess physical and chemical characteristics of the soils to be disturbed by mining with respect to the suitability of the soils as plant growth media;
- determine the volumes of topdressing available for salvage and reclamation;
- identify soils-related constraints to achieving the postmining land use; and
- comply with the regulatory requirements of State of New Mexico MMD for soils resource information.

The soil survey identified 14 map units, comprised of 13 soil series and one miscellaneous land-type in the mine area. Seven of the 14 map units were also identified within the area of the railroad corridor. Five of the mapping units account for 90% of the topdressing to be salvaged throughout the life of the mine. Total topdressing to be salvaged equals 4,024 acre-feet of material. The mapping units Hickman clay loam, Pietown sandy loam, Augustine sandy loam, Tejana-Tejana, moderately deep complex and Tejana gravelly-sandy loam account for 3,610 acre feet (90%) of the 4,024 acre feet of the topdressing material to be salvaged within the entire proposed life-of-mine area. These same mapping units account for 3,545 acres (45%) of the total 7,885 acres that would be disturbed in the proposed mine permit area. The average salvage depth of all the mapping units would be 12 inches. Landscape positions of the mapping units range from ridge tops to bottomlands; textures of the mapping units range from gravelly sandy loam to sandy loam and clay loam. The potential native plant production of the soil series within these mapping units varies from 300 to 600 pounds per acre in unfavorable years to 800 to 1,350 pounds per acre in favorable years.

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[1] The SCS is now known as the Natural Resources Conservation Service (NRCS).

D. HYDROLOGY

Surface and Ground Water

The surface water and ground water information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM in May 1990 has not changed substantially and, for the purposes of this supplemental analysis, provides an adequate description of the affected environment. See pages 3-27 and 3-30 of the BLM draft EIS (Supplemental EIS, Volume II). However, additional technical studies have been conducted since the preparation of the BLM's EIS in 1990, and such information has been incorporated into this analysis wherever relevant. Although these technical studies contain some additional information on the hydrology of the affected environment, they tend to focus more on potential impacts to the hydrology of the Fence Lake project area from mining. Most of this information is more relevant to the discussion provided in chapter 4 of this supplemental EIS. These additional sources that contain information on both environmental consequences and on the affected environment include:

- The Permit Application Package submitted by SRP to the State of New Mexico in October 1993.
- The Cumulative Hydrologic Impact Assessment Fence Lake Coal Mine prepared by New Mexico MMD in 1994.
- "Geohydrology and Potential Hydrologic Effects of Surface Coal Mining of the San Augustine Coal Area and Adjacent Areas, Catron and Cibola Counties, New Mexico," in U.S. Geological Survey, Water-Resources Investigations Report 92-4004.

E. BIOLOGICAL RESOURCES

The vegetation and wildlife sections included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM in May 1990 and in chapter 2 of the Fence Lake Project final EIS prepared by the BLM in September 1990 have been expanded for this supplemental EIS because of the collection of additional baseline data. See pages 3-34 and 3-38 of the BLM draft EIS and page 2-7 of the BLM final EIS (Supplemental EIS, Volume II).

In the 1980s, extensive quantitative and qualitative field data were collected including descriptions of all major vegetation types and small bird and mammal population estimates. Preliminary baseline reconnaissance began in 1982. As part of the permit application for the newly proposed mining operation, a vegetation resources baseline study of the permit area was made by IMS (formerly known as InterMountain Soils) for Salt River Project during the 1992 growing season. IMS surveyed the vegetation types within a 1,000-foot buffer surrounding the mine area and the railroad corridor. This survey encompassed approximately 17,000 acres (see Figure 3 in chapter 4). Names of the vegetation types generally reflect the dominant overstory and understory species or life form within each type. Vegetation types identified in this study are different from those described in 1990 in the BLM draft EIS because either new types not previously identified were mapped or new names for previously identified types which are more descriptive were used based on the more intensive sampling during the course of the 1992 study. The vegetation types are described in detail in the Vegetation Section. These vegetation communities provide wildlife habitat in the Fence Lake area that is typical for the region.

1. Vegetation Resources

The vegetation section of the BLM EIS has been revised because a new vegetation survey of the proposed mine permit area and railroad corridor was made in 1992. The permit application package contains a detailed discussion of the sampling methods and results of the 1992 vegetation survey. A detailed survey of the wetland was made in January 1995 and is discussed in Appendix 16-1 of the permit application.

As part of the survey, the permit area was divided into three portions, designated North, Central, and railroad corridor. The North area covered the Northwest and Penthouse Reserve Areas. The Central area covered the Valley, Central Ridge, and Central Ridge Extension Reserve Areas (The five Reserve Areas are discussed in Appendix A of the supplemental EIS). Vegetation types were mapped in all three portions. Vegetation data were collected in the North and Central portions of the impact area.

Vegetation types within the North and Central areas were sampled separately for total vegetation cover (including tree canopy cover), herbaceous production, and woody plant density. In the Juniper-Blue Grama type, basal area and firewood volume were estimated for tree species. A species list of the sampled vegetation types was compiled based on sampling data as well as observations of incidental species.

Six vegetation types were identified and sampled in the North and Central areas. Four of the vegetation types occur in both areas and two vegetation types occur in the Central area only. Two additional vegetation types were identified in the survey of the railroad corridor. Table 3-1 shows the vegetation types and acreage within the study area for the Fence Lake Mine.

TABLE 3-1
ACREAGE WITHIN STUDY AREA BY VEGETATION TYPE

VEGETATION TYPE	STUDY AREA (acres)
Juniper-blue grama	6,462.8
Saltbush-alkali sacaton	4,535.9
Rabbitbrush-blue grama	7,091.7
Mixed grass	3,024.6
Mixed grass, sodic	45.3
Short grass	309.1
Greasewood-alkali sacaton	306.9
Wetland	15.0
TOTAL	21,791.3

A comprehensive list of species and their occurrence by vegetation type in the North and Central areas is provided in Appendix 16-1 of the PAP. Figure 3 in chapter 4 delineates the vegetation types for the mining disturbance area. Exhibit 16-2 of the PAP delineates the vegetation types for the railroad corridor.

a. Juniper-Blue Grama

This vegetation type occurs within the mine area and along the railroad corridor. This type is characterized by an overstory tree canopy of variable density consisting almost exclusively of one-seeded juniper. Understory vegetation is predominantly blue grama. Black grama and galleta occur to a much lesser extent. Forb species are sparse and include goosefoot, trumpet phlox, lupine, and pigweed. Total understory vegetation cover ranges from 14 to 18%. Tree canopy cover is somewhat lower. Herbaceous production is low, ranging from 65 pounds per acre for the Central area to 91 pounds per acre for the North area. Woody plant density, mostly broom snakeweed, ranges from 474 to 892 stems per acre for the two areas. Travessilla and Tejana soils are the dominant soils occurring under this vegetation type.

b. Saltbush-Alkali Sacaton

This vegetation type occurs within the mine area and along the railroad corridor. This type is characterized by a shrub layer consisting predominantly of four-wing saltbush with lesser amounts of winterfat, rabbitbrush, and snakeweed. The herbaceous understory is predominated by blue grama, alkali sacaton, and western wheatgrass. Forb species are sparse, with Russian thistle predominant. Total vegetation cover ranges from 33 to 39%. Herbaceous production is quite variable between the 2 areas, with an average of 51 pounds per acre for the North area and 338 pounds per acre for the Central area. Woody plant density, mostly four-wing saltbush, ranges from 1,592 to 1,892 stems per acre for the two areas. Catman and Hickman soils occur primarily under this vegetation type.

c. Rabbitbrush-Blue Grama

This vegetation type occurs within the mine area and along the railroad corridor. This type is characterized by a shrub layer consisting predominantly of two species of rabbitbrush with lesser amounts of broom snakeweed. The herbaceous understory is predominated by blue grama. Forb species are sparse. Total vegetation cover is about 39%. Herbaceous production ranges from 621 pounds per acre for the North area to 552 pounds per acre for the Central area. Woody plant density, mostly rabbitbrush, ranges from 2,740 to 8,497 stems per acre for the two areas. Tejana, Augustine, and Pietown soils are the dominant soils occurring under this vegetation type.

d. Mixed Grass

This vegetation type occurs within the mine area and along the railroad corridor. This type is characterized by a sparse shrub layer consisting predominantly of winterfat and broom snakeweed. The herbaceous understory is predominated by blue grama, western wheatgrass, and alkali sacaton. Forb species are sparse except for the occurrence of Russian thistle in the Central area. Total vegetation cover is about 38% in both areas. Herbaceous production ranges from 438 pounds per acre for the North area to 1,200 pounds per acre for the Central area (mostly Russian thistle, indicative of poor grazing condition). Woody plant density ranges from 344 to 523 stems per acre for the two areas. Hickman and Sparham soils are the dominant soils which occur under this vegetation type.

e. Mixed Grass, sodic

This vegetation type is a mixed grass type that occurs on sodium-affected soils along the railroad corridor. The type is similar to the mixed grass type found in the mine area. A sparse overstory of Gardner saltbush, rabbitbrush, and broom snakeweed occur in this type. The herbaceous understory is predominated by alkali sacaton, blue grama, galleta, and Indian ricegrass. Total vegetation cover is estimated to be between 35% and 50%. Hickman and Catman soils are the dominant soils occurring under this vegetation type.

f. Greasewood-Alkali Sacaton

This vegetation type has been identified only in the Central area, and is characterized by a shrub layer consisting predominantly of greasewood with a significant component of four-wing saltbush. The herbaceous understory is predominated by alkali sacaton. Forb species are sparse. Total vegetation cover averages 29%. Herbaceous production averages 269 pounds per acre. Woody plant density, mostly greasewood and four-wing saltbush, averages 2,332 stems per acre. Hickman and Catman soils are the dominant soils occurring under this vegetation type.

g. Short Grass

This vegetation type has been identified only in the Central area, and is characterized by a nearly absent shrub layer. The herbaceous understory is predominated by blue grama and western wheatgrass. Forb species are very sparse. Total vegetation cover is about 41%. Herbaceous production averages 241 pounds per acre. Woody plant density averages 22 stems per acre. Hickman soils are the dominant soils occurring under this vegetation type.

h. Wetlands

A 1.5-acre area of wetland occurs along the railroad corridor, about 2 miles east of the Coronado Generating Station (see Figure 2 in chapter 4). A flowing well provides a water source to a small pond. The pond and surrounding area support a wetland vegetation type, which can be classified as a palustrine, persistent, emergent wetland. Present vegetation consists of cattails, rushes, sedges, and minor components of other hydrophytic vegetation. Vegetative cover ranges from 7.5% to 83.8%. There is no wetland within the proposed mining disturbance area.

i. Threatened and Endangered Plant Species

Threatened or endangered plant species (per the Endangered Species Act, State of New Mexico Endangered Plant Protection Act, Arizona Native Plant Law, and the Surface Mining Control and Reclamation Act of 1977), that could occur in the permit area are identified in Table 3-2. However, none of these species have been found in the area or are expected to occur in the proposed mining disturbance area or railroad corridor owing to the lack of suitable habitat.

TABLE 3-2

SENSITIVE PLANT SPECIES OF NEW MEXICO THAT COULD OCCUR IN THE FENCE LAKE MINE AREA

Scientific Name[1]	Common Name	Status[2]
Allium gooddingii	Goodding's onion	FC2
Astragalus acumbens	Zuni milkvetch	ST
Epithelantha micromeris	Button cactus	SE
Erigeron acomanus	Acoma fleabane	FC2
Erigeron hessii	Hess' fleabane	FC2
Erigeron rhizomatus	Zuni fleabane	SE, FT
Helianthus paradoxus	Puzzle sunflower	FC2
Mammilaria wrightii	Wright's pincushion cactus	SE, BLM
Phacelia serrata	Cinder phacelia	FC2
Puccinellia parishii	Parish's alkali grass	FE
Rumex orthoneurus	Blumer's dock, Chiricahua dock	FC2
Sclerocactus parviflorus	Small-flowered hardwall cactus	SE
Senecio quaerens	Gila groundsel	FC2
Toumeya papyracantha	Grama grass cactus	SE, FC2

[1] Source:
Inventory of Rare and Endangered Plants of New Mexico, Sivinski & Lightfoot, 1992, New Mexico Forestry and Resources Conservation Division

[2] Status:

SE - State Endangered, New Mexico Endangered Plant Species Act (9-10-10 NMSA)
ST - New Mexico Rare and Sensitive Plant Species
FT - Federally listed threatened species
FE - Federally listed endangered species
FC2- Federal candidate, Category 2 (moderate priority for listing as threatened or endangered)
BLM- BLM sensitive species

(1) Goodding's onion

This plant occurs in the understory of mature coniferous forests in the Rocky Mountain Montane Conifer Forest and Rocky Mountain Subalpine Conifer Forest plant communities, which occur in elevation bands ranging from approximately 7,500 to 12,000 feet. Because the proposed mine permit area and railroad corridor would range in elevation from 5700 to 6800 feet, it is unlikely that this species would occur on any part of the Fence Lake project area.

(2) Zuni milkvetch

Zuni milkvetch occurs in pinyon pine and juniper woodlands of the Great Basin Conifer Woodland plant community, which occurs in an elevation band ranging from 5,500 to 7,500 feet. None of these species were found during surveys made of the proposed project area from 1983 through 1995 and it is unlikely that any will be found owing to a lack of suitable habitat.

(3) Button cactus

Button cactus occurs in limestone or igneous soils within the following plant communities: Chihuahuan Desert Scrub (hot, dry plains with widely scattered shrubs), Interior Chaparral (relatively dense shrub association on desert mountain slopes), and Semidesert Grassland (hot, dry plains of warm season grass), which occur in elevation bands below 5,500 ft. Because the proposed mine permit area and railroad corridor range in elevation from 5700 to 6800 feet, it is unlikely that this species would occur in the Fence Lake project area.

(4) Acoma fleabane

The Acoma fleabane is a Federal Category 2 Candidate for listing among the threatened or endangered plants species of the United States. It is included on List 2 of plants that are considered rare and sensitive in New Mexico. List 2 includes plants that are rare because of restricted distribution or low numerical density. List 2 species are not protected by state statute or policy (Sivinski and Lightfoot 1995).

Acoma fleabane occurs on sandstone or dolomite soils in pinyon-juniper woodlands. The species is presently known only from Cibola and McKinley Counties, New Mexico. Given that this species is known from McKinley County, immediately north of Catron County, and that a small portion of the proposed mine area would be in the southern part of Cibola County, it is possible that this species could occur on the proposed Fence Lake mine permit area or on suitable sandstone habitats in the vicinity of the proposed railroad corridor. However, numerous collections of plants from the lease area have not included this or any other sensitive species.

(5) Hess' fleabane

This plant is presently known to occur in only two small populations in the Gila Wilderness, in rock outcrop areas within the Rocky Mountain Subalpine Conifer Forest and Subalpine Grassland plant communities, which occur in elevation bands ranging from 7,500 to 12,000 feet. Because the proposed mine permit area and railroad corridor range in elevation from 5700 to 6800 feet, it is unlikely that this species would occur in the Fence Lake project area.

(6) Zuni fleabane

This plant occurs on sandstone slopes and clay banks of Chinle shale and Baca formation outcrops in the pinyon-juniper vegetation type at 7,300 to 8,300 feet elevation in the Zuni, Datil, and Sawtooth Mountains. Most populations are known from the Cibola National Forest in areas south of Fort Wingate in McKinley County and northwest of Datil in Catron County. The soil and vegetation type required for the Zuni fleabane does not exist in the proposed project area.

(7) Puzzle sunflower

This plant occurs in hot, dry plains of warm season grasses in the Semidesert Grassland plant community, which occurs at elevations below 5,500 feet. Because the proposed mine permit area and railroad corridor would range in elevation from 5,700 to 6,800 feet, it is unlikely that this species would occur anywhere in the Fence Lake Project area.

(8) Wright's pincushion cactus

Wright's pincushion cactus occurs in hot, dry plains of warm season grasses in the Semidesert Grassland plant community, which occurs at elevations below 5,500 feet. Because the proposed mine permit area and railroad corridor would range in elevation from 5,700 to 6,800 feet, it is unlikely that this species would occur anywhere in the Fence Lake Project area.

(9) Cinder cone phacelia

The cinder cone phacelia is a Federal Category 2 Candidate for listing among the threatened or endangered plant species of the United States. It is included on List 2 of rare and sensitive plants of New Mexico (Sivinski and Lightfoot 1995) and on lists of endangered, threatened, and candidate plants of Arizona (Rutman 1992).

In Arizona, this plant is known to occur on volcanic cinder substrate between 5,900 and 7,200 feet elevation in the vicinity of Flagstaff (Rutman 1992). In New Mexico, the plant is known only from Cibola County, where it occurs in pinyon-juniper woodland on volcanic cinder substrate.

Given the apparent restriction of this species to volcanic cinder substrate, it seems unlikely that it would occur on the proposed Fence Lake mine permit area or along the railroad corridor owing to the absence of this soil type.

(10) Parish's alkali grass

Parish's alkali grass is a dwarf, ephemeral, winter-to-spring, tufted annual grass that flowers from April to May. It is known from widely disjunct localities in California, Arizona and New Mexico. Its small populations occupy a very specific desert habitat of alkali springs and seeps at elevations of 2,300 to 5,900 feet. This species is dependent on continuous seep and spring flow. Population size fluctuates widely in response to climatic conditions and precipitation.

On September 24, 1995 OSM prepared a biological assessment addressing the potential impacts that the proposed project would have. At the request of USFWS, additional information was submitted on the potential impacts to Parish's alkali grass. The only potential habitat for this grass species would be at the wetland site located along the railroad corridor in Arizona near the Coronado Generating Station. This wetland was surveyed in August of 1995 to determine species composition and the extent of wetland that could potentially be impacted by the railroad construction. Parish's alkali grass was not noted in this survey; however, the survey was not conducted during this species' flowering period. SRP has committed to conduct an additional survey of the wetland between April and July of 1996 in order to determine the presence or absence of this species. If OSM decides to issue a permit for the railroad transportation corridor in Arizona, the permit would contain a stipulation that this survey must be completed and the results submitted to OSM for review prior to any disturbance of the wetland area. OSM will continue informal consultation under Section 7 of the Endangered Species Act until the survey has been completed.

(11) Blumer's dock, Chiricahua dock

This plant occurs in riparian areas within the Subalpine Grassland and Rocky Mountain Montane Conifer Forest plant communities, which occur in elevation bands ranging from 7,500 to 10,000 feet. Because the proposed mine permit area and railroad corridor would range in elevation from 5700 to 6800 feet, it is unlikely that this species would occur anywhere on the Fence Lake Project area.

(12) Small-flowered hardwall cactus

This cactus occurs within the Great Basin Conifer Woodlands (pinyon pine and juniper woodlands) and Great Basin Desert Scrub (dry, cold winter desert with shrub dominance) plant communities, which occur in elevation bands below 7,500 feet. None of this species was found during surveys made of the proposed Fence Lake Project area from 1983 through 1995, and it is unlikely that any will be found owing to a lack of suitable habitat.

(13) Gila groundsel

This plant occurs in riparian areas within the Rocky Mountain Montane Conifer Forest plant community, which occurs in an elevation band ranging from 7,500 to 10,000 feet. Because the proposed mine permit area and railroad corridor would range in elevation from 5700 to 6800 feet, it is unlikely that this species would occur anywhere on the Fence Lake Project area.

(14) Grama grass cactus

This cactus occurs in sandy or gypseous soil within the following plant communities: Semidesert Grassland (hot, dry plains of warm season grasses), Great Basin Conifer Woodland (pinyon pine and juniper woodland), and Plains and Great Basin Grassland (mostly short-grass plains), which occur at elevation bands below 7,500 feet. None of this species was found during surveys made of the proposed project area from 1983 through 1995 and it is unlikely that any will be found owing to a lack of suitable habitat. However, it is possible that Grama grass cactus could be present due to its highly cryptic mimicry of blue grama grass leaves.

2. Wildlife Resources

a. Wildlife Monitoring Program Overview

(1) Raptor Nest Monitoring

Raptor nesting activity at Salt River Project's Fence Lake Mine has been monitored annually since the spring of 1987. Prior to 1987, the BLM surveyed raptor nesting surveys on potential Federal coal lease lands in the permit area. In addition to relatively formal monitoring of known raptor (and common raven) nest sites, incidental observations of raptor occurrences and nesting have been recorded on the coal lease lands since the fall of 1982. A summary of raptor observations between September 29, 1982 and May 17, 1991 was compiled and submitted to SRP in January 1992 (Dames & Moore, 1992). In addition, results of raptor nest monitoring have been submitted to Salt River Project annually. Annual raptor nest monitoring would continue through the duration of the proposed mining activities.

(2) Other Wildlife Studies

In 1984 and 1985, wildlife studies, intended to provide a premining baseline estimate of species diversity and density, included sampling of small mammal populations in juniper and grassland habitats, mist-netting for bats, and estimating small bird densities from transects in juniper and grassland habitats. Small mammal sampling was done in November 1984 and May 1985, and consisted of live-trapping, marking, and releasing. Some small mammals were also taken in Museum Special snap traps and ultimately deposited in the mammalogy museum at the University of New Mexico. Bird transects were read on three consecutive days in November 1984 and February, May, and July 1985. Attempts to mist-net bats at a cattle tank in the mine area were made only during May 1985. Surveys for black-footed ferrets were made according to U.S. Fish & Wildlife Service protocols in June 1983 and 1984, and in February and May 1985.

In addition to the formal surveys for small mammals, birds, and black-footed ferrets, activity levels in a large prairie dog town near Apodaca Windmill have been monitored annually since 1983. All field work records have been maintained for all wildlife observations since 1982. Some of the data collected since 1985 have been incorporated into annual reports submitted by SRP.

SRP also monitored breeding bird numbers at the proposed mine permit area during the spring of 1987 and 1988. Breeding bird surveys were conducted on the woodland (juniper) baseline transect and on a valley bottom transect approximately parallel to the original baseline transect. The primary focus of breeding bird monitoring was to determine whether mining operations could have an adverse effect on local populations of breeding gray vireos, a species that is listed by the State of New Mexico as an endangered species (New Mexico Department of Game & Fish, 1988).

The field effort was expanded annually in the proposed permit area from the fall of 1982, ranging from general field reconnaissance to intensive sampling. Studies of the railroad corridor were initiated in 1984 with helicopter and pedestrian surveys. For wildlife, these surveys focused on the potential for occurrence of Federally listed species. Subsequent to 1984, studies of the railroad corridor have focused on raptor presence and nesting, but have included general reconnaissance surveys for all wildlife species.

Studies made in 1984 and 1985 indicate that the habitats that characterize the permit area support low-to-moderate populations of common, widespread species of small vertebrates. Small mammal trapping resulted in the capture of five species of rodents. Deer mice (Peromyscus spp.) were the most common species in both grassland and woodland habitats. This could be true at any location within the proposed mine permit area and along the railroad corridor. The total number of bird species located on grassland and woodland transects ranged from 5 during the winter to 23 during the spring migration period. Birds found on transects were generally common, widespread grassland and woodland species.

There are several larger species, including waterfowl, big game, furbearers, and predators in the proposed mine permit area. Mule deer and pronghorn antelope, for example, are present throughout the region in small-to-moderate numbers. Both species have been observed in the proposed mine permit area and pronghorn antelope have been recorded within the railroad corridor. There are no known concentration, migration, or other special use areas of mule deer or pronghorn antelope in the mine permit area. Waterfowl are occasionally present. In late September 1982, a low-lying area behind a berm just west of Garcia Lake in Frenches Draw was inundated with water. The several-acre lake that was formed was occupied by 50 to 100 ducks of various species. Smaller numbers of waterfowl were observed at Garcia Lake in September 1988. It is likely that migrating waterfowl use these ephemeral lakes, when they are present, as rest areas. Other than 1982 and 1988, observations of waterfowl in the area have been limited to occasional teal on stock tanks. No observations of waterfowl have been made in the railroad corridor, although they probably occur in the wetland area.

Observations have been recorded of gray fox, badger, bobcat, mountain lion and coyote in the mine permit area. These species are undoubtedly present in small numbers in suitable habitats throughout the proposed mine permit area.

b. Raptors

(1) Golden Eagle Nests

A total of six golden eagle nest sites were checked on April 20, 1993. Of this set of nests, two were active and contained a total of three nestling eagles. One active nest was located in the vicinity of the proposed mine permit area, but outside of what would be the permit boundary. The second nest was located along the railroad corridor.

The nest in the mine area contained a pair of nestlings estimated to be about 1.0 to 1.5 weeks of age. This nest site has been utilized by golden eagles three times and common ravens twice since 1986. The site was inactive in 1990 and 1992. In 1992, golden eagles utilized a nest which is located approximately 2 miles north of the mine area nest. The two nests are suspected to be alternate nest sites of the same pair of eagles.

The golden eagle nest located just north of the proposed railroad corridor was inactive in 1992 (verified during helicopter survey), but contained a single, week-old nestling on April 20, 1993.

Other historic golden eagle nests on sites known as Cerro Prieto and Queen Mary Rock were not active in 1993. Moreover, neither of these nests have been utilized by golden eagles since 1985 and 1987, respectively. In 1992, a single adult eagle was observed in the vicinity of Queen Mary Rock and an adult bird was found dead near the base of a cliff. No eagles were observed at Queen Mary Rock in 1993.

(2) Red-Tailed Hawk Nests

Despite their relative commonness in the proposed mine permit area and along the railroad corridor, only two, active red-tailed hawk nests have been located in the area between 1984 and 1993. One nest was active in 1984 and 1985, containing two nestlings, both of which ultimately fledged each year. The nest has not been active since 1985 and had nearly fallen completely apart by 1993. Another nest was discovered in April 1993. When checked on April 20, 1993, an adult bird was present on the nest, but no attempt was made to determine the nest contents.

To date, no active red-tailed hawk nests have been found along the proposed railroad corridor.

(3) Ferruginous Hawk Nests

The only documented nesting by this species in the proposed mine permit area or along the railroad corridor occurred in a juniper tree at the edge of a large prairie dog town near Apodaca Windmill. The nest site is about 0.75 miles east of the eastern boundary of the proposed mine permit area. The first documented use of the site occurred in 1988. In subsequent years, ferruginous hawks were present at the site until 1992 when no activity at the site was noted. The nest was not active in 1993. Utilization of this site by ferruginous hawks appears related to the status of the prairie dog colony. In 1988 and 1989, the colony was healthy and contained numerous animals. Prairie dog numbers declined in 1990 and 1991, and no animals were observed in the town in 1992 or 1993.

(4) Prairie Falcon Nests

Two prairie falcon aerie locations are known in the proposed mine permit area. One nest is located on Cerro Prieto; however, the precise location of the nest site has never been determined. Inference of nesting activity by prairie falcons at this site has been drawn from aggressive behavior of adult birds towards people walking at the base of the cliff where the nest site is suspected of being located. This site has been monitored annually since 1989. Only in May 1991 was no evidence of nesting activity observed at this site.

Another prairie falcon nest is located in a crevice in a north-facing cliff about 2 miles south of Cerro Prieto. This site was active in 1987 and 1989, but evidence of falcon use of the site has not been recorded since 1989.

No active prairie falcon aeries have been located to-date along the proposed railroad corridor.

(5) American Kestrel Nests

The American kestrel is probably the most common species of raptor in the proposed mine permit area and along the railroad corridor.

No formal attempts have been made to locate nests of this falcon. Numbers of kestrels appear to swell in the late summer and early fall, probably in response to increases in numbers of grasshoppers available to migrating birds.

(6) Other Nests

In addition to the raptor nests discussed above, a number of nests of the common raven have been monitored for activity since 1983. In addition to nests of known occupancy, attempts also have been made to locate and monitor at least a dozen unknown stick nests in both the mine permit area and along the railroad corridor. Locations of these nests were provided by the BLM or they were discovered by SRP personnel conducting other work in the area. Some stick nests, first located in 1983, were actually woodrat nests in crevices on cliff faces and some have not been relocated since their discovery.

c. Large Game Mammals

Large game mammals that most commonly occur in the area include American pronghorn antelope (Antilocapra americana) and mule deer (Odocoileus hemionus). Recent reports from ranchers in the northern Catron County area indicate that elk have been spotted on rare occasions. However, there are no known concentration, migration, or other special use areas of mule deer, pronghorn antelope, or elk in the proposed mine permit area or in the railroad corridor area. Big game sighting locations are included in the PAP.

(1) Elk

From recent communication with the New Mexico Game and Fish (Fryberger, 1993), a few elk have been reportedly spotted by ranchers across northern Catron County. Fryberger estimates that perhaps as many as 20 elk could be dispersed across the entire length of the county within a swath bounded by the Town of Fence Lake and the Zuni Salt Lake. However, within the past decade, not a single elk has been sighted in the proposed mine permit area or railroad corridor area by SRP personnel or by any consultants.

(2) Deer

The Socorro Resource Management Plan (RMP) delineates deer herd units, based on data from the New Mexico Department of Game and Fish. The mine area is within the Gallup deer herd unit. Habitat in this unit is believed to be capable of supporting at least 0.5 deer per section. However, mule deer hunting in and around the proposed mine permit area is opportunistic and sporadic (Anderson 1990), mule deer densities in the area are low, and no crucial habitat has been identified in the area.

Communications with the New Mexico Game and Fish Department (Fryberger, 1993) indicate that the department has not conducted formal population density surveys in the area. However, based on 3 years of informal observations made by the District Range Officer, it is estimated that perhaps as many as 500 deer populate the area within an east-west swath running across the entire length of northern Catron County, as bounded by the Town of Fence Lake on the north and the Zuni Salt Lake on the south. This described area would cover approximately 1,057 square miles, which yields a rough deer population density of 0.473 per square mile.

The hunting of deer in this area is restricted to buck licenses only.

(3) Antelope

From communication with the New Mexico Game and Fish Department (Fryberger, 1993), based on 3 years of informal observations made by the District Range Officer, it is estimated that perhaps only 100 antelope populate the area of northern Catron County, as bounded by the Town of Fence Lake on the north and Zuni Salt Lake on the south. This described area would cover approximately 1,057 square miles, which yields a rough antelope population density of 0.095 per square mile.

Owing to the scattered presence of antelope in the area, no hunting licenses are issued for this region of New Mexico.

The Arizona Game and Fish Department (Hooe, 1993) has initiated aerial surveys to determine antelope population densities in Apache County. Hooe indicates that for the area along the proposed railroad corridor, an antelope density of 0.77 per square mile was calculated from his work in 1992. The buck to doe to fawn ratio was found to be 42:100:7. Hooe estimated that the deer population density would probably be about the same as the antelope in this area, with the antelope preferring the open spaces, whereas the deer would prefer the areas in the brush or trees offering more cover.

d. Other Wildlife

(1) Mammals

Besides the large game mammals discussed above, the mammalian fauna of the area consists mostly of small, inconspicuous species of nocturnal rodents. This group of mammals is not well documented, as few collections have been made in the northern Catron County grassland and juniper woodland habitats (Findley et al. 1975). Other species of economic importance include coyote (Canis latrans), bobcat (Felis rufus), kit fox (Vulpes macrotis), and gray fox (Urocyon cinereoargenteus).

(2) Birds

The other avifauna of the mine permit area are a moderately diverse group characterized by species associated with grassland and juniper woodlands habitats. The majority of these are passerines (songbirds). Shorebirds and waterfowl also are occasionally observed in the area when water is present.

A number of raptors occur in the area as transients, including peregrine falcon (Falco peregrinus), Cooper's hawk (Accipiter cooperi), and northern harrier (Circus cyaneus). Other raptor species known to nest in the mine permit area, besides those previously discussed, include great horned owl (Bubo virginianus) and western screech owl (Otus asio). Burrowing owls (Athene canicularia) have also been observed in the mine permit area, but nesting has not been confirmed for the majority of the species.

(3) Reptiles and Amphibians

The proposed mine permit area does not support a high diversity of amphibians and reptiles, possibly due to the cooler temperatures at this elevation (the majority of the area is above 6,600 feet). Species occurring in the area are representative of those found in most southwestern grassland and juniper woodland habitats, and include toads, lizards, skinks, whiptails, and snakes.

(4) Fish and Invertebrates

Due to all of the streams being strictly ephemeral in nature, no fish species exist around the proposed mine permit area and railroad corridor. The Zuni Salt Lake, and the Cinder Cone Pool are the only natural bodies of water in the entire area that are not ephemeral. In the small Cinder Cone Pool, there exists a small assemblage of aquatic invertebrates, primarily small brine shrimp and at least one species of unidentified fly larvae (per SRP personnel). Bradbury (1971) indicates that the same assemblage of organisms is present in the main Zuni Salt Lake, and that the dominant fly species present is Hydropyrus hians. The Zuni Salt Lake and the Cinder Cone Pool are located approximately 3 1/2 miles from the proposed railroad corridor and more than 9 miles from the proposed mine permit area. Additional related discussion on the Zuni Salt Lake is included in the hydrology section.

e. Endangered and Threatened Species

Sensitive species files have been maintained by SRP for observations made around the project area for more than a decade. The species in Table 3-3 are either listed or candidates for listing by the Federal government, or listed by either the States of Arizona or New Mexico.

TABLE 3-3
State and/or Federally listed species of wildlife that may occur in the mine area or along the transportation corridor between the Fence Lake Mine and St. John's, Arizona.

Common Name	Scientific Name	Federal Status	AZ Status	NM Status
MAMMALS				
Spotted Bat	*Euderma maculatum*	C2	--	Gr2
Occult Little Brown Bat	*Myotis lucifugus occultus*	C2	--	--
Southwestern Cave Myotis	*M. velifer brevis*	C2	--	--
Allen's Big-eared Bat	*Plecotus phyllotis*	C2	--	--
Greater Western Mastiff Bat	*Eumops perotis*	C2	--	--
Pale Townsend's Big-eared Bat	*Plecotus townsendii*	C2	--	--
Big Free-tailed Bat	*Tadarida macrotis*	C2	--	--
Fringed Myotis	*Myotis thysanodes*	C2	--	--
Long-eared Myotis	*Myotis evotis*	C2	--	--
Long-legged Myotis	*Myotis volans*	C2	--	--
Western Small-footed Myotis	*Myotis ciliolabrum*	C2	--	--
Yuma Myotis	*Myotis yumanensis*	C2	--	--
Black-footed Ferret	*Mustela nigripes*	E	--	--

TABLE 3-3 (Cont.)
State and/or Federally listed species of wildlife that may occur in the mine area or along the transportation corridor between the Fence Lake Mine and St. John's, Arizona.

Common Name	Scientific Name	Federal Status	AZ Status	NM Status
BIRDS				
Snowy Egret*	*Egretta thula*		ST	
White-faced Ibis	*Plegadis chihi*	C2	--	--
Bald Eagle*	*Haliaeetus leucocephalus*	E	SE	Gr2
Northern Goshawk	*Accipiter gentilis*	C2	SC	--
Ferruginous Hawk*	*Buteo regalis*	C2	ST	--
Peregrine Falcon*	*Falco peregrinus*	E	SC	Gr1
Mexican Spotted Owl*	*Strix occidentalis lucida*	T	SC	--
Western Burrowing Owl	*Athene canicularia*	C2	--	--
Mountain Plover	*Charadrius montanus*	C2	--	--
Long-billed Curlew*	*Numenius americanus*	C3C	--	--
Loggerhead Shrike*	*Lanius ludovicianus*	C2	--	--
Gray Vireo*	*Vireo vicinior*	--	--	Gr2
Baird's Sparrow	*Ammodramus bairdii*	C2	ST	Gr2
Interior Least Tern	*Sterna antillarum*	E	--	Gr1
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	P	SE	Gr1

TABLE 3-3 (Cont.)
State and/or Federally listed species of wildlife that may occur in the mine area or along the transportation corridor between the Fence Lake Mine and St. John's, Arizona.

Common Name	Scientific Name	Federal Status	AZ Status	NM Status
FISH				
Little Colorado Spinedace	*Lepidomeda vittata*	T		
AMPHIBIANS				
Arizona Southwestern Toad	*B.m. microscaphus*	C2	--	--
Chiricahua Leopard Frog	*Rana chiricahuensis*	C2	ST	--
Lowland Leopard Frog	*Rana yavapaiensis*	C2	SC	Gr1
REPTILES				
Mexican Garter Snake	*Thamnophis eques*	C2	SC	Gr2
Narrow-headed Garter Snake	*Thamnophis rufipunctatus*	C2	SC	Gr2
Texas Horned Lizard	*Phrynosoma douglassii*	C2	--	--

* Species observed at or near Fence Lake No. 1 Mine since 1982

Sources: U.S. Fish & Wildlife Service, 1991, 1994 and 1995; State of New Mexico, 1988; State of Arizona, 1988

Status Codes:

Federal
E = Listed as an endangered species
T = Listed as a threatened species
P = Proposed for listing as endangered
C2 = Federal Category 2 candidate for listing (listing probably appropriate but data on vulnerability and threat are not currently available to support proposed rules)

State of Arizona
SE = Endangered within the State
ST = Threatened within the State
SC = State candidate for listing as a threatened or endangered species

State of New Mexico
Gr1 = Group 1 - Species prospects for survival or recruitment within the State are in jeopardy
Gr2 = Group 2 - Species whose prospects for survival or recruitment within the State are likely to become jeopardized within the foreseeable future.

(1) Spotted Bat

Very little is known of the biology and distribution of this species. In New Mexico, spotted bats are apparently present only during the warmer months of the year. Spotted bats are usually captured in forested areas in nets placed over bodies of water. Rocky areas (e.g., cliffs) seem to be an important component of the habitat wherever spotted bats have been captured.

The species is known from Catron County, although there are no observational records of spotted bats in the proposed mine permit area or along the railroad corridor. On several evenings during the spring of 1985, mist-nets were placed at stock tanks in an attempt to sample bat populations at the test mine (Fence Lake No. 1 Mine), but no bats were captured.

(2) Occult Little Brown Bat

This species is not listed by either the State of Arizona or State of New Mexico. Occult little brown bats usually occur in ponderosa pine or oak-pine woodlands during the breeding season (Hoffmeister, 1986). During periods of migration, they probably occur in other habitats as well. To date, no record of occurrence exists for this species at the proposed Fence Lake mine.

(3) Southwestern Cave Myotis

Southwestern cave myotis inhabit caves, mine tunnels, and the underside of bridges (Hoffmeister, 1986). The species generally occurs at lower, desert elevations and it seems unlikely that populations of this bat would be present in the proposed mine permit area. To date, no record of occurrence exists for this species at the proposed Fence Lake mine.

(4) Allen's Big-eared Bat

Allen's big-eared bat is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (U.S. Fish and Wildlife Service 1995). The species is not accorded special status by the State of New Mexico, Department of Game and Fish (NMDGF 1988) or the Arizona Game and Fish Department (AGF 1993).

Allen's big-eared bat appears to be primarily a resident of ponderosa pine forest with less frequent occurrences in pinyon-juniper-pine transition zones and lower elevation habitat types, including riparian zones of lowland deserts (Hoffmeister 1986; Findley et al. 1975). The species is known to occupy mine tunnels (Cockrum and Musgrove 1964; Commissaris 1961) and may also roost in natural caves or crevices in cliffs (Hoffmeister 1986).

This species has been recorded from the Black Range, the Mogollon Mountains, and the Glenwood Springs Fish Hatchery in Catron County (Findley et al. 1975). It has not been recorded in the proposed Fence Lake mine permit area, but, owing to the nature of some of the habitat (i.e., pinyon-juniper) at Fence Lake, it is not possible to rule out potential occurrence of this bat. Potentially suitable roosting habitat exists on Cerro Prieto, Tejana Mesa, and on isolated, smaller mesas throughout the proposed Fence Lake mine permit area. The species could also forage over open stock tanks scattered throughout the open grasslands in the area.

(5) Greater Western Mastiff Bat

The greater western mastiff bat is a Federal Category 2 Candidate for listing by the USFWS (1991), but is accorded no special status by either the State of New Mexico (NMDGF 1988) or Arizona (AGF 1993).

Populations of greater western mastiff bats in the United States are at the extreme northern edge of their known geographic distribution. Eumops perotis occurs in the southwestern United States south through northern Mexico to Venezuela, Ecuador, Peru, Bolivia, Paraguay, eastern Brazil, and northern Argentina (Nowak 1991). In Arizona, the species occurs from Kingman and Morenci in the north southward, occupying habitats ranging from desert lowlands upslope into encinal and pine-oak woodland. Most records of the species are from Sonoran and Mohave desert localities (Hoffmeister 1986). Findley et al (1975) report only a single record of this species in New Mexico; that taken in Guadalupe Canyon in Hidalgo County.

It is unlikely, due to an absence of suitable, lowland habitat, that greater western mastiff bats occur on the proposed Fence Lake mine area or along the railroad corridor that would be operated between the mine and Coronado Generating Station.

(6) Pale Townsend's Big-eared Bat

Plecotus townsendii pallescens is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). It is not included on lists of species endangered in New Mexico (NMDGF 1988) or Arizona (AGF 1993).

The species, Plecotus townsendii, is discussed by Findley et al (1975) but the subspecies P. t. pallescens is not. Hoffmeister (1986) indicates that the distribution of P. t. pallescens in Arizona is the same as that of Plecotus townsendii and indicates the possibility of clinal variation and individual variation in dorsal color throughout the state. Plecotus townsendii ranges from southwestern Canada, through the coterminous western United States and Mexico with populations also known from the Ozark and central Appalachian regions (Nowak 1991). The species occupies a wide variety of habitats ranging from desert lowlands to more upland woodlands and pine forests (Arizona Game and Fish 1993). The species ranges widely in Arizona and New Mexico. There are records of this species from higher montane habitats in southern Catron County, New Mexico (Findley et al. 1975).

Although neither Hoffmeister (1986) nor Findley et al. (1975), report specimen records from the vicinity of Fence Lake, New Mexico west to St. Johns, Arizona, it is likely that this species occurs in the area. The absence of specimen records from the proposed Fence Lake mine area and along the railroad corridor is probably a function of no sampling in the area rather than an absence of the species.

(7) Big Free-tailed Bat

The big free-tailed bat is Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). The species is not included on lists of threatened or endangered wildlife maintained by Arizona (AGF 1993) and New Mexico (NMDGF 1988).

This species ranges from Iowa and southeastern Kansas through the southwestern United States southward through northern and central Mexico, most of South America, Cuba, the Dominican Republic, and Jamaica. In Arizona it is known from a few widely scattered localities in Sonoran desert-scrub, pinyon-juniper, pine, and Douglas-fir forests (Hoffmeister 1986). In New Mexico the species is considered to be uncommon, but has been taken in the Mogollon Mountains of southern Catron County (Findley et al. 1975).

Big free-tailed bats are thought to be more common in New Mexico at elevations below 6,000 feet (Findley et al. 1975). A similar elevational distribution is apparent in Hoffmeister's (1986) specimen records. Although this species is not known from the proposed Fence Lake mine permit and railroad corridor areas, it is quite possible that they do occur in both locations based on habitat types present. Rocky cliffs with clefts and fissures are apparently preferred for roosting and such features are common in the proposed Fence Lake mine permit and railroad corridor areas.

(8) Fringed Myotis

The fringed myotis is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). Fringed myotis is not listed by either the State of New Mexico (NMDGF 1988) or Arizona (AGF 1993).

The fringed myotis ranges through western North America from southern British Columbia, south into southern Mexico (Nowak 1991) where it occurs in a variety of habitats ranging from low deserts to ponderosa pine and spruce-fir forests (AGF 1993). Hoffmeister (1986) indicates that the preferred habitat of this species in Arizona is probably mid-elevation oak woodland. Most Arizona specimen records are from along the Mogollon rim and from mountainous areas in the southern part of the state. Findley et al. (1975) indicate a similar ecologic distribution for New Mexico, ranging from grassland and desert up to the upper elevational limits of ponderosa pine forest.

With respect to the proposed Fence Lake mine permit and railroad areas, this species has been taken at Springerville and Alpine, Arizona and in the Mogollon Mountains of Catron County, New Mexico. It seems likely that this species would occur, at least during migration, in the proposed mine permit and railroad corridor areas.

(9) Long-eared Myotis

Myotis evotis is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). The species is not, however, listed by either the State of New Mexico (NMDGF 1988) or Arizona (AGF 1993).

This medium-sized myotis ranges from southwestern Canada through the conterminous western United States south into Baja California (Nowak 1991). In Arizona, the species is described as widespread and of regular occurrence in ponderosa pine and spruce-fir forest. Whether the species migrates or hibernates is not known (AGF 1993). Similarly, in New Mexico the species is widespread in conifer forests and has been taken in the Mogollon Mountains of southern Catron County (Findley et al. 1975).

Given the apparent habitat preferences of this species, it seems unlikely that long-eared myotis would occur regularly on the proposed Fence Lake mine permit or railroad corridor areas. Given that the winter status of this species (hibernates or migrates) is so poorly known, it is not possible to clearly rule out the possibility of occurrence, however. It is possible that the species migrates through or hibernates in the proposed Fence Lake mine permit area.

(10) Long-legged Myotis

The long-legged myotis is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). It is not listed by either the State of Arizona (AGF 1993) or New Mexico (NMDGF 1988).

The long-legged myotis ranges throughout western North America as far north as Alaska and south to central Mexico. To the east, its range extends to Nebraska and the Dakotas. In Arizona this bat is most often found in pinyon-juniper, oak, and coniferous forests between 4,000 and 9,000 feet elevation. As is the case with the long-eared myotis, the winter habits of this bat are poorly known (AGF 1993). Myotis volans in New Mexico is also known primarily from the ponderosa pine zone and higher, with little information on winter habits. Specimen records for this species from Arizona and New Mexico suggest that the species is widespread in coniferous forests throughout both states (Findley et al. 1975; Hoffmeister 1986).

The apparently preferred habitat (e.g., ponderosa pine and mixed coniferous forest) of this species does not occur on the proposed Fence Lake mine permit or railroad corridor areas. This bat has, however, been taken in grassland and pinyon-juniper habitats in New Mexico. Consequently, it is not possible to completely rule out potential of occurrence of this species on the proposed mine permit or railroad corridor areas.

(11) Western Small-footed Myotis

Myotis ciliolabrum, formerly considered conspecific with Myotis leibii, the eastern small-footed bat, is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). The species is not included on New Mexico (NMDGF 1988) or Arizona (AGF 1993) lists of threatened or endangered species.

This species occurs throughout much of western North America from southwestern Canada south to upper Baja California and east to western Oklahoma, thence south to Coahuila and Zacatecas, Mexico (AGF 1993). In Arizona, the species occupies mid-elevation habitats, eschewing low, arid desert areas in favor of oak woodlands, chaparral, and riparian habitats with junipers and oaks (Hoffmeister 1986). In New Mexico, the species apparently is most common in ponderosa pine habitats, but has been found in grassland and oak woodland habitats (Findley et al. 1975). Some populations of the species apparently winters at some locations in Arizona (i.e., south of the Gila River and Mohave County), while other populations may hibernate without attaining complete torpor (AGF 1993; Findley et al. 1975).

Despite fairly good numbers of specimen records for this species in Arizona and New Mexico, the general biology and habitat requirements of this bat are poorly known (AGF 1993). The species has been taken in southern and central Catron County, New Mexico (Findley et al. 1975) and in the vicinity of Whiteriver and Hanagan Meadow in Arizona (Hoffmeister 1986). There are no records for the proposed Fence Lake mine permit area or, apparently, along the proposed railroad corridor. The species probably does occur in the area, at least sparingly.

(12) Yuma Myotis

Yuma myotis is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). Myotis yumanensis is not, however, included on state lists of endangered or threatened wildlife in either Arizona (AGF 1993) or New Mexico (NMDGF 1988).

Yuma myotis occurs throughout much of the western United States from British Columbia south to Mexico and east to Oklahoma and Texas. The species occurs widely throughout the State of Arizona except for the northeastern corner of the state (AGF 1993). In New Mexico, the species apparently occurs primarily through the central part of the state in the Rio Grand Valley (Findley, et al. 1975). Of all Arizona and New Mexico species of Myotis, this species shows a very strong preference for foraging low over open water where it takes midges, caddis flies, moths, and other flying insects. The species is known from between 4,000 and 7,000 feet in New Mexico and from near sea level along the lower Colorado River up to about 7,000 feet in Arizona (Findley, et al. 1975; Hoffmeister 1986). The common denominator in the elevational distribution of the species is the presence of open water.

(13) Black-footed Ferret

Black-footed ferrets primarily rely on active prairie dog (Cynomys sp.) towns for a source of food and shelter. The historic range of the ferret includes New Mexico, however, there are no recent documented occurrences of this species in the Southwest. A Gunnison's prairie dog (Cynomys gunnisoni) town is located near the Apodaca windmill to the east and outside of the proposed mine permit area. No mining-related disturbance would occur near the Apodaca windmill. Surveys for black-footed ferrets were made according to U.S. Fish and Wildlife Service protocols in 1983, 1984, and 1985. No ferrets were located during these surveys.

(14) Snowy Egret

Three individuals of this species were observed at a small tank associated with Apodaca Windmill on May 22, 1985. Snowy egrets have not been observed at any other location or at any other time at the proposed Fence Lake mine permit area. The species is listed as threatened in the State of Arizona, but has neither Federal nor State of New Mexico special status. The Arizona listing is related to declines in nesting densities along the lower Colorado River (Arizona Game & Fish, 1988). In the State of New Mexico, snowy egrets are most commonly found along the Rio Grande and Pecos Rivers, although Hubbard (1970) indicates that the species is a local migrant statewide.

(15) White-Faced Ibis

White-faced ibis has never been recorded at the proposed Fence Lake mine or railroad corridor areas. White-faced ibis occur in New Mexico, including Catron County, during periods of migration (Hubbard, 1970). This species is most often found near water, including flooded fields. Given the general lack of open water associated with the proposed mine permit and railroad corridor areas, it is unlikely that this species occurs regularly in either area. Migrating white-faced ibis might occur at Garcia Lake or a similar location when summer rainstorms cause these ephemeral lakes to be filled with water.

(16) Bald Eagle

Bald eagles have been observed on one occasion, during the winter of 1987-1988, near the Hubbell Ranch headquarters. In the proposed mine permit area, bald eagles would be expected to occur rarely as winter visitors. There is no suitable nesting habitat, which includes large trees in the vicinity of large bodies of water where prey (primarily fish) is readily available. There are few nesting records of this species in New Mexico. Hubbard (1970) reports 2 nesting records from the eastern and middle forks of the Gila River around 1913. Recently a pair of bald eagles nested near Caballo Reservoir on the Rio Grande (E.L. Smith, Personal Observation, 1989).

(17) Northern Goshawk

Nesting by northern goshawks in New Mexico and Arizona is largely restricted to ponderosa pine and mixed-conifer forests of the higher mountain ranges (Reynolds et al., 1991). Occurrence of northern goshawk at the proposed Fence Lake mine permit and railroad corridor areas would only be expected during periods of spring or fall migration, or during the winter months when goshawks might occasionally occupy dense stands of pinyon-juniper woodland. Goshawks have never been observed.

(18) Ferruginous Hawk

Ferruginous hawks have been observed in the proposed mine permit area nearly every year since they were first noted on June 8, 1983. Ferruginous hawks were not recorded during raptor monitoring trips during the spring of 1992 and 1993. Nesting by this species occurred just east of the coal lease boundary near Apodaca Windmill in 1988 through 1991. Ferruginous hawks have never been observed in the proposed railroad corridor, although there is no reason to suspect they should not occur there.

In 1992, the U.S. Fish & Wildlife Service published a finding on a petition to list the ferruginous hawk among the threatened or endangered wildlife of the United States. The service indicated that the petitioner did not present substantial information to indicate that the listing was warranted. The service cited an increase in the numbers of known nesting pairs of ferruginous hawks in the United States and Canada. The cited increase ranged from 3,200 pairs in 1979 to 3,792 in 1991. The literature review conducted by the service in order to respond to the petition indicated that the number of breeding pairs may actually be as high as 5,612.

(19) Peregrine Falcon

Peregrines breed very locally in mountainous areas of New Mexico. In Arizona, the species breeds essentially statewide on selected, isolated cliff ledges. Within the proposed mine permit area, peregrines probably occur only as spring and fall transients since suitable nesting habitat and prey base density is lacking.

A single peregrine falcon was present at the proposed mine permit area on August 29 and 30, 1988. The bird was a juvenile that was apparently attracted to the area by large numbers of mourning doves. The doves had been attracted to the site as a result of a planting of winter wheat.

(20) Mexican Spotted Owl

This species is included in the discussion only because of a single record of Mexican spotted owl presence near the proposed mine permit area. On the evening of August 31, 1984 a spotted owl was heard calling from a juniper tree about one mile south of Apodaca Windmill. Mexican spotted owls are forest birds and it is highly unlikely that the species would nest in the open, rolling juniper-grasslands in which this observation occurred. Nesting could occur in dense pinyon-juniper woodlands in canyons or at the base of large mesas, but characteristic nesting habitat is coniferous forest or montane-riparian woodland. Thus, the area surrounding the proposed mine and railroad corridor displays an absence of potential habitat for the Mexican spotted owl. It is probable that the observed owl was a dispersing juvenile.

(21) Western Burrowing Owl

The western burrowing owl is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). This species is not included on lists of threatened or endangered wildlife for the states of Arizona (AGF 1988) or New Mexico (NMDGF 1988).

The burrowing owl (Athene canicularia) as a species ranges from southwestern and central southern Canada south through the western half of the United States through Mexico and Central America to all of South America excepting the Amazon Basin. The subspecies A. c. hypugea, the western burrowing owl, ranges from southwestern and central southern Canada south through the western half of the United States to central Mexico (Johnsgard 1988; AOU 1957). In Arizona the western burrowing owl is described as being an uncommon and local resident in Sonoran zone grasslands and fallow agricultural fields (Monson and Phillips 1981). Hubbard (1970) describes the bird in New Mexico as being rare to fairly common in grasslands at lower and middle elevations and as a summer resident of Catron County.

Burrowing owls are present on the proposed Fence Lake mine permit and railroad corridor areas. Burrowing owls were observed near the test mine site (Fence Lake No. 1 Mine) in June 1983. The June 1983 observation, however, is the only recorded instance of burrowing owls on the lease site between October 1982 and September 1995. They have also been observed at a couple of locations along Catron County Road No. A001 between St. Johns, Arizona and the Leon Windmill near New Mexico Road No. 601. The most consistent location for burrowing owls in the vicinity of the transportation corridor has been near the Leon Windmill and New Mexico Road No. 601 and for about two miles east of the windmill on an unnumbered dirt road. For example, on April 20, 1993 one burrowing owl was observed at the Leon Windmill near Road No. 601. A second bird was observed approximately seven miles further. On June 1, 1994 four burrowing owls were observed in the same general area; one on a fence post at the Leon Windmill and four others 3.2 miles east of the windmill. The dirt road along which these observations were made ranges from 0.2 (near Carter Well) to 0.7 (near Leon Windmill) miles south of the proposed railroad corridor centerline. No sightings of burrowing owls have ever been made from vehicles driven along the proposed route of the railroad corridor.

(22) Mountain Plover

The mountain plover is not listed by either the State of Arizona or State of New Mexico, but it is a Federal Category 1 candidate for listing. In New Mexico, the species summers primarily in the eastern plains, but has been known to nest in Catron County (Hubbard, 1970). There are no breeding records of this species in Arizona, although a nesting pair was found in 1978 about 23 miles east of Springerville, Arizona in Catron County, New Mexico (Monson and Phillips, 1981). This species has not been recorded either in the proposed mine permit or railroad corridor areas.

(23) Long-Billed Curlew

Long-billed curlews in New Mexico summer locally and irregularly in the eastern plains (Hubbard, 1970). In Arizona, the species occurs primarily as a spring and fall transient in the lower Gila, Salt, and Colorado River valleys (Monson and Phillips, 1981). Hubbard (1970) notes that the species is occasional in Catron County and there is one record of long-billed curlew presence on the Hubbell Ranch road about 3 miles east of New Mexico Highway 117 on June 7, 1983. Up until 1992, the species had never been recorded in the proposed mine permit or railroad corridor areas, even in years when heavy summer rains caused ephemeral lakes in the mine area to be filled with water. However, a single curlew was observed standing in the dry bottom of Largo Creek in 1992.

(24) Loggerhead Shrike

Loggerhead shrikes are fairly common in the proposed mine permit and railroad corridor areas. Neither the New Mexico nor the Arizona Game and Fish departments list this species as sensitive. It is a Category 2 candidate for listing by the Federal government, primarily because of population declines in the Midwestern, New England, and Middle Atlantic states (Ehrlich et al., 1992).

(25) Gray Vireo

The gray vireo is not listed by the Federal government or the State of Arizona. The species is a Group 2 endangered species in the State of New Mexico, but the New Mexico Department of Game and Fish (1988) suggests that the species may be more common in the State than previously thought and may not be endangered.

Gray vireos are fairly common in the proposed mine permit area and may occur locally along the railroad corridor. The species is known to nest in pinyon-juniper woodlands. During spring monitoring for this species in 1987 and 1988, at least 2 singing males were found on a permanent woodland transect established for baseline studies in 1984 and 1985. During the spring of 1985, William H. Howe, University of New Mexico, found 3 singing males on the transect. The species probably occurs at scattered locations throughout suitable pinyon-juniper woodland habitats over much of western New Mexico.

(26) Baird's Sparrow

Baird's sparrow is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). New Mexico includes this species on their endangered species list in Group 2 (NMDGF 1988). The State of Arizona (AGF 1988) includes Baird's sparrow on its list of threatened species (those species or sub-species whose continued presence in Arizona could be in jeopardy in the near future. Serious threats have been identified and populations are either lower than they were historically or extremely local and small.

Baird's sparrow breeds from southeastern Alberta, southern Saskatchewan, and southern Manitoba south to central and eastern Montana, southern South Dakota, southeastern North Dakota, and west-central Minnesota. It winters from southeastern Arizona, southern New Mexico (casually) and north-central Texas south to northern Sonora, Durango, Chihuahua, Coahuila, and southern Texas. In Arizona the species is described as a formerly abundant transient and winter resident of the grasslands of southeastern Arizona, now very much less common (Monson and Phillips 1981). Hubbard (1970) and NMDGF (1988) describe the species in New Mexico as a local and irregular migrant in the eastern plains in Autumn, with recent records coming mainly from the Animas Valley, a key habitat area.

Baird's sparrow is a grassland species, primarily preferring short-grass prairies with scattered low bushes and matted vegetation for nesting. In winter the species may be found in overgrown fields and open grasslands.

In Catron County, New Mexico, Baird's sparrow has been found to occur irregularly in recent times (1960 or later). Any change in this irregular pattern is unlikely (NMDGF). There are no Arizona records of this species occurring in the northeastern or north-central part of the state.

(27) Interior Least Tern

The interior least tern is listed as an endangered species of the United States (USFWS 1989). This species is not included on lists of threatened native wildlife of Arizona (AGF 1988), probably because of its status in Arizona; there are less than a dozen records and only one specimen of this species in Arizona, all occurring between May and September (Monson and Phillips 1981). The least tern is listed by the State of New Mexico as endangered, Group 1 (species whose prospects of survival or recruitment within the state are in jeopardy).

Interior (i.e., non-coastal) populations of this species occur locally along the Colorado, Red, Missouri, Mississippi, and Ohio River systems. In New Mexico, least terns breed in the vicinity of Roswell, including regularly at Bitter Lake National Wildlife Refuge. The species is not expected to occur regularly in Catron County, nor has it since at least 1960 (NMDGF 1988).

(28) Southwestern Willow Flycatcher

The southwestern willow flycatcher is listed by the Federal government as an endangered species (USFWS 1995). The species is also listed by the State of New Mexico as Endangered, Group 2 (species whose prospects of survival within the state are likely to become jeopardized in the foreseeable future). It is also listed by the State of Arizona as an endangered species (those species or subspecies [a] extirpated from Arizona since the mid-1800's and/or [b] for which extinction or extirpation is highly probable unless conservation efforts are undertaken soon).

The breeding range of E. t. extimus includes southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico. The species nests in dense riparian associations of willow, cottonwood, buttonbrush, and other deciduous shrubs and trees (USFWS 1995). The species is a neotropical migrant, being present in the United States only during the summer breeding season. In Arizona the bird breeds throughout the state in suitable habitats of the Sonoran zones upslope into the Transition (pine) zone (Monson and Phillips 1981). In New Mexico E. t. extimus apparently breeds in the Chama, Rio Grande, Zuni, San Francisco, Gila, and probably the Hondo basins. It also breeds in the San Juan and western Sangre de Cristo Mountains (NMDGF 1988; Hubbard 1970). Southwestern willow flycatchers along with other subspecies of Empidonax traillii occur widely in a variety of habitats during periods of spring and fall migration although subspecific identification of such migrants in the field is extremely difficult (USFWS 1995).

It is possible that migrating willow flycatchers could occur at both the proposed Fence Lake mine permit and railroad corridor areas during spring and fall migration. However, there is no suitable nesting habitat anywhere on the proposed mine site or railroad corridor areas.

(29) Little Colorado Spinedace

This species occurs in the Little Colorado River habitat downstream from Zion Reservoir, approximately 15 miles west of the Coronado Generating Station where the western terminus of the proposed railroad corridor would be located. None of this species has been observed at the proposed Fence Lake mine permit or railroad corridor areas.

(30) Arizona Southwestern Toad

The Arizona southwestern toad is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1988). Neither the State of Arizona (AGF 1988) nor the State of New Mexico (NMDGF 1988) include this species on lists of endangered or threatened species.

B. m. microscaphus is known from scattered localities in the headwaters of tributaries of the Colorado River in southwestern Utah, southern Nevada, central Arizona, and western New Mexico (Stebbins 1985). It inhabits rocky stream canyons and floodplains in the Arizona Upland desert and evergreen woodlands south of the Mogollon Rim (Lowe 1964; Stebbins 1985).

(31) Chiricahua Leopard Frog

The Chiricahua leopard frog is a Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). It is listed by the state of Arizona as a threatened species (AGF 1988), but has no status in the State of New Mexico (NMDGF 1988).

Rana chiricahuensis occurs locally in central and southeastern Arizona eastward into western New Mexico (AGF 1988; Stebbins 1985). Stebbins (1985) describes this species as being a highly aquatic frog that occurs primarily in pine-oak woodlands and pine forests where it inhabits rocky streams with deep, rock-bound pools. The species does extend downslope into chaparral, grassland, and even desertscrub where suitable habitat exists.

It is very unlikely that this species would occur on the proposed Fence Lake mine permit or railroad corridor areas owing to an absence of suitable habitat. There are no rocky, perennial streams or other perennial waters associated with the mine permit or railroad corridor areas, thereby precluding presence of this "highly aquatic" frog.

(32) Lowland Leopard Frog

The lowland leopard frog is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). It is a candidate for listing by the State of Arizona (AGF 1988) and is listed in Group 1, Endangered by the State of New Mexico (NMDGF 1988).

The lowland leopard frog occurs in Colorado River drainage from the Virgin River in northwest Arizona south to the Yuma area, thence eastward to central Arizona and southwest New Mexico. The species is most often encountered below 4,800 feet elevation south of the Mogollon Rim (Stebbins 1985). In Arizona lowland leopard frogs typically occur below 3,000 feet elevation and are generally restricted to permanent waters including springs, streams, stock tanks, and side channels of major rivers. In New Mexico the frog is known from 14 localities in Catron, Grant, and Hidalgo Counties of southwest New Mexico. In Catron County this frog occurs in the vicinity of Frisco Hot Springs. Habitats occupied in New Mexico are similar to those in Arizona (NMDGF 1988).

It is very unlikely that this species would occur on the proposed Fence Lake mine permit or railroad corridor areas owing to an absence of suitable habitat. Water sources in the mine permit and railroad corridor areas are largely confined to semi-permanent to ephemeral stock ponds and playa lakes that are normally dry for most months of the year and may be dry for several years in a row (e.g., Garcia Lake on the lease site). Moreover, the proposed mine permit and railroad corridor areas are a considerable distance north of the known range of the species and at much higher elevation than this species normally occurs.

(33) Mexican Garter Snake

The Mexican garter snake is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). Arizona lists this snake as a candidate for state-listing (AGF 1988) and the State of New Mexico includes it in Group 2 of the endangered species of New Mexico (NMDGF 1988).

The Mexican garter snake occurs in permanent marshes and streams at middle elevations in central, south-central, and southeastern Arizona (AGF 1988). In New Mexico the species is known only from the lower Gila Basin in Grant County, and near Virden in Hidalgo County (NMDGF 1988). The Mexican garter snake is another of the "border specialty" species that is at the very northern edge of its range where it occurs in the United States. The distribution of this snake extends southward through most of the highlands of Mexico to the State of Oaxaca (Stebbins 1985).

This species is quite unlikely to occur on the proposed Fence Lake mine permit or railroad corridor areas owing to the absence of suitable permanent streams and marshes. Moreover, the project site is considerably north, both in Arizona and New Mexico, of areas known to be frequented by this snake.

(34) Narrow-headed Garter Snake

The narrow-headed garter snake is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States. It is a candidate for listing by the State of Arizona (AGF 1988) and is listed by the State of New Mexico (NMDGF) as an endangered, Group 2 species.

The narrow-headed garter snake ranges from central and eastern Arizona and southwestern New Mexico south in the Sierra Madre Occidental to central Durango, Mexico (Stebbins 1985). In Arizona, this highly aquatic snake is found in clear, permanent streams that drain the Mogollon Rim. It is usually found in the middle elevations of such drainages in pinyon-juniper woodland, pine-oak woodlands, and ponderosa pine forests (Stebbins 1985; AGF 1988). In New Mexico, the species occurs on and immediately below the Mogollon Plateau in Catron, Grant, and Hidalgo Counties in the Gila and San Francisco River drainages (NMDGF 1988).

This species is highly unlikely to occur on or anywhere near the proposed Fence Lake mine permit or railroad corridor areas owing to a complete absence of suitable habitat.

(35) Texas Horned Lizard

The Texas horned lizard is a Federal Category 2 Candidate for listing among the threatened or endangered wildlife of the United States (USFWS 1994). The species is not accorded special status by either the State of Arizona (AGF 1988) or the State of New Mexico (NMDGF 1988).

The Texas horned lizard ranges from Kansas to Durango and Tamaulipas, Mexico and the Gulf Coast of Texas east to the Mississippi River, and west to extreme southeastern Arizona. In Arizona, the species occurs in Chihuahuan desertscrub and desert grassland in the extreme southeastern corner of the state on sandy or gravelly flat ground (Lowe 1964). In New Mexico, the species occurs in Chihuahuan desertscrub and desert grasslands of the southern part of the state north and eastward through the plains of eastern New Mexico at elevations below 6,000 feet (Stebbins 1985).

The proposed Fence Lake mine permit and railroad corridor areas are (1) well outside the known geographic range of this species, (2) situated at elevations generally higher than this species normally occurs, and (3) do not provide the desertscrub or desert grassland habitat types preferred by this lizard. Consequently, it is highly unlikely that this species would occur in the project area. Phrynosoma douglassii is the only species of horned lizard encountered in the area between October 1982 and September 1995.

F. LAND USE AND RECREATION

The land use and recreation information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM (May 1990) has not changed substantially and, for the purposes of this supplemental analysis, provides an adequate description of the affected environment. See pages 3-46 and 3-47 of the BLM draft EIS (Supplemental EIS, Volume II).

G. ESTHETICS

Noise was not analyzed in the BLM draft EIS, but it is included under esthetics in this supplemental EIS since this analysis is based on SRP's proposed mine plan, which includes an operations plan and the construction of a railroad corridor.

1. Visual Resources

The visual resources information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM (May 1990) has not changed substantially and, for the purposes of this supplemental analysis, provides an adequate description of the affected environment. See page 3-48 of the BLM draft EIS (Supplemental EIS, Volume II).

2. Noise

The proposed minesite in New Mexico, like the railroad corridor in both New Mexico and Arizona, would be situated in a relatively unpopulated and undeveloped remote area characterized by a lack of noticeable noise. Primary sounds would be background level noise from sources such as jet airplanes overhead, offroad vehicles, birds, barking dogs, and wind. Some ranch-related machinery operation and road traffic may also contribute to such background level noise.

H. SOCIOECONOMICS

The socioeconomic information included in chapter 3 of the Fence Lake Project draft EIS prepared by the BLM in May 1990 has not changed substantially. See page 3-51 of the BLM draft EIS (Supplemental EIS, Volume II). However, results from the 1990 U.S. Census and other recent studies have been used to update the Fence Lake Project Study Area Socioeconomic Characteristics. See Table 3-13 in the BLM draft EIS for 1980 data. See Table 3-3 in this supplemental EIS for post-May 1990 data.

A comparison of these two tables reveals that none of the three counties in the socioeconomic study area (Catron and Cibola Counties, New Mexico and Apache County, Arizona) achieved the population growth that had been projected for them by 1990. The populations of Catron and Cibola Counties actually declined between 1980 and 1990, while Apache County experienced a population increase of 9,942 people. However, all of the six principal cities that were listed in the study area in both New Mexico and Arizona lost population between 1980 and the early years of the 1990s. The race and ethnicity of the three counties did not change significantly.

From 1987 to 1992 the pattern of change in the civilian non-farm labor force and employment varied greatly from county to county, although the change over the three-county study area resulted in a net increase of only 179 jobs. During this period:

- Catron County remained virtually unchanged in terms of the number of employed population. It experienced a modest increase of 15 in its number of employed.

- Cibola County experienced a major loss of 2,736 jobs that severely depressed the county's economy. Employment decreased by approximately 36% since 1987, largely owing to significant declines in demand for domestic production of uranium and the subsequent loss of all of the county's active uranium mining and milling operations by 1990.

- Apache County experienced a significant gain of 2,900 jobs. These gains were primarily in wholesale and retail trade, and in government and service sectors. Since the county's three principal cities in the socioeconomic study area (St. Johns, Springerville, and Eagar) all experienced population declines during this period, and because Apache County is much larger than the New Mexico counties (11,211 square miles), it is assumed that many of these new jobs were dispersed throughout the central and northern parts of the county, which are relatively distant from the proposed project area.

Employment data for the agricultural sector was not included in the table of socioeconomic characteristics that was compiled for the BLM draft EIS. See Table 3-13 (Supplemental EIS, Volume II). But employment data obtained for this supplemental EIS indicates that in 1992 agriculture accounted for 461 jobs in Catron County, 3,366 jobs in Cibola County, and 305 jobs in Apache County.

In the overall socioeconomic study area, total personal and per capita income increased at a modest rate. Other economic indicators, such as retail sales and bank deposits, appear to have followed similar patterns in the three counties.

Unemployment rates remained relatively high in 1992 for all three counties, although each experienced a decline in its unemployment rate since 1987: Catron County's was -2.4%, Cibola County was -2.2%, and Apache County was -1.2%. Cibola County's decline in the unemployment rate was not a true reflection of its economic condition since it lost 2,736 jobs and saw its population decline by 6,552 during this same period, thrusting the county's economy into a severely depressed state.

In summary, the socioeconomic data that are presented here generally support the analysis and conclusions made in chapter 3 of the BLM draft EIS. The notable exceptions were the losses of population that were experienced by all of the principal cities in the socioeconomic study area by 1992 to 1993, and the failure of all three counties to achieve the overall population growth projected for them by 1990.

TABLE 3-4
FENCE LAKE PROJECT STUDY AREA SOCIOECONOMIC CHARACTERISTICS

Characteristic	Catron County	Cibola County	Apache County	Total Study Area
Land Area (sq. miles)	6,929	4,180	11,211	22,320
Population:				
1980	2,720	30,346	52,108	85,174
1990	2,563	23,794	62,950	89,307
Principal Cities:				
Reserve (1992)	298			298
Grants (1992)		8,509		8,509
Milan (1992)		1,888		1,888
Eagar (1993)			4,495	4,495
St. Johns (1993)			3,325	3,325
Springerville (1993)			1,645	1,645
Total Principal Cities	298	10,397	9,465	20,160
Race & Ethnicity 1992 (%):				
White *	97.9	58.4	20.2	32.6
Native American	0.8	38.5	77.6	65.0
Black	0.3	0.8	0.2	0.4
Other	1.0	2.3	2.0	2.0
* Percentage of White population which is Hispanic.	28.4	34.1	4.2	20.6

Characteristic	Catron County	Cibola County	Apache County	Total Study Area
Civilian Labor Force & Employment 1992:				
Agriculture	461	3,366	305	4,132
Construction	20	122	325	467
Mining	(d)	77	25	102
Manufacturing	(d)	439	475	914
Transp & Pub Utilities	20	220	1,650	1,890
Wholesale & Retail Trade	41	1,278	1,725	3,044
Fin, Ins, & Real Estate	4	130	400	534
Services and Misc.	133	833	5,150	6,116
Government	352	1,779	5,375	7,506
Total Employment	1,031	8,244	15,430	24,705
Unemployed	124	1,127	2,650	3,901
Total Civ Labor Force	1,155	9,371	18,080	28,606
Unemployment Rate 1992(%)	10.9	12.0	15.1	13.6
Income 1992:				
Total Personal ($ millions)	$ 30.98	$ 232.53	$ na	$ na
Per Capita	$12,230.00	$9,762.00	$ na	$ na
Economic Indicators 1992:				
Retail Sales ($ millions)	$ 4.92	$ 97.24	$ 108.00	$210.16
Bank Deposits($ millions)	na	$ 68.04	$ na	$ na

NOTE: (d) non-disclosure; included in Services & Misc.; na - not available

Sources: Bur of Bus & Economic Resrch, Univ of NM; County Profiles (1989)
AZ Dept of Commerce: Profile: Apache County Arizona (1993)
Apache County Development and Community Services: Apache County Economic Profile (1994)

I. CULTURAL RESOURCES

An initial summary of Fence Lake project cultural resources was provided in chapter 3 of the BLM draft EIS prepared in May 1990 and in chapter 2 of the BLM final EIS prepared in September 1990. See page 3-55 of the BLM draft EIS and page 2-7 of the BLM final EIS (Supplemental EIS, Volume II). The initial summary was prepared at a time when the cultural resources within the project area had not been completely surveyed. Subsequent to 1990, further Native American contacts have been made, and ethnographic studies and the cultural resources survey have been completed. Therefore, the following information is provided to supplement and update the initial summary.

Cultural resources are objects, buildings, structures, sites, or districts of historical, architectural, archaeological, cultural, or scientific importance. Over the years, a variety of Federal, State and local laws and ordinances have been enacted to protect cultural resources. Such measures reflect widespread appreciation of the value of preserving and understanding our nation's heritage.

The primary cultural resource protection requirements for the proposed Fence Lake surface coal mining permit are stipulated by SMCRA, New Mexico Surface Coal Mining Act, and their implementing regulations, in concert with the National Historic Preservation Act (NHPA) (specifically Section 106), and its implementing regulations for "Protection of Historic Properties" (36 CFR Part 800), Archeological Resources Protection Act (ARPA), American Indian Religious Freedom Act (AIRFA), and the Native American Graves Protection and Repatriation Act (NAGPRA). Additionally, Arizona and New Mexico state preservation and cemetery requirements are considered. The provisions of the National Historic Preservation Act, Section 106, are being implemented by a Programmatic Agreement (PA) among the BLM, OSM, Advisory Council on Historic Preservation (ACHP) and the New Mexico State and Arizona State Historic Preservation Officers (SHPO) with concurrence from several Indian tribes and State agencies, and the applicant, SRP (see Appendix-D for the Fence Lake Programmatic Agreement on cultural resources and historic properties). Other preservation legislation affecting Federal lands is being dealt with through consultation with the applicant, other State and Federal agencies and Native American Tribes, particularly in the context of ARPA, AIRFA, and NAGPRA.

The purpose of the protective legislation is to ensure that cultural resources including traditional cultural properties are inventoried, evaluated, considered in the analysis of project impacts, and that steps are considered to avoid or mitigate any identified adverse effects. The PA has been designed to create a process of consultation among the project proponent (SRP), SHPO, ACHP, BLM, Native American Tribes, and regulatory agencies, and other interested parties. The PA also provides a mechanism for negotiating solutions to conflicts over preservation issues that might be identified over the life of the proposed surface coal mine. The consideration of cultural resources during the preparation of this EIS is intended to contribute to the ongoing process of complying with legislation protecting cultural resources.

1. BLM Leasing Data Base

a. Survey Methodology

The BLM in its draft EIS noted that archaeological investigations in the vicinity of the lease were initiated in 1982. These investigations include a series of studies made by the University of New Mexico for SRP within the existing State lease area that is surrounded by the proposed Federal lease. The bulk of the SRP surveys were summarized in a 1985 report (Hogan 1985). Subsequent archaeological investigations included exploratory drilling locations (Elyea 1988) and some private inholdings (Elyea 1989), as well as mitigative data-recovery studies (Hogan 1987).

Other sample archaeological surveys were made by the BLM in conjunction with the initial stages of land use planning for the San Augustine Coal Area which includes the proposed Fence Lake mine. The BLM also prepared a synthesis of the ethnohistoric and historic use of the area as part of this planning effort. The results of the BLM studies are reported in three volumes (Camilli and others 1988; Kayser and Carroll 1988; Kelley 1988).

In combination, the University of New Mexico and BLM surveys encompassed about 10,406 acres or 58 percent of the total 17,940 acres of State and proposed Federal leases. BLM's draft EIS did not include detailed consideration of the railroad corridor, proposed to connect the mine permit area to the Coronado Generating Station near St. Johns, Arizona.

b. Cultural Resources Information

Prior to the leasing action, the BLM, anticipating future coal mining in the San Augustine Coal Area, inventoried 109 40-acre sample quadrants during 1984 and 1985 (Camilli and others 1988; Kayser and Carroll 1988; Kelley 1988). Fourteen of these sample quadrants (560 acres) fell within the Fence Lake Project's Federal lease lands. At the lease stage, a total of 27 prehistoric, ethnohistoric and historic archaeological sites were recorded within the 14 sample quadrants. An additional seven sites were recorded during drill hole and access road surveys (Elyea 1988; Hogan and Elyea 1983; Winter and Hogan 1986). A review of site files of the Archaeological Records Management System maintained by the New Mexico Historic Preservation Division determined that another 10 sites, documented by other miscellaneous surveys, were located within the proposed Federal lease. Five of the 44 recorded sites include more than one temporal component. The resulting total of 49 components reflect a variety of site types including limited activity sites, habitation sites, and habitation sites with kivas.

The review of the regional data base indicated that at least two-thirds of the archaeological sites should fall within categories comprised of non-habitation sites. The other third should be comprised of habitation sites that seem to have been more permanently occupied. The results obtained during the BLM's evaluation shows that the archaeological data collected from the leasing area fits the known regional patterns findings.

The sample inventory on the Federal lease lands included a single site with a kiva, but on percentage basis this is consistent with regional data. Additionally, the sample inventory of the Federal lease area also lacked examples of sites dating from some of the time periods represented in the regional database. For example, no Paleoindian, Basketmaker or Pueblo I sites were identified in the sample inventory. However, the sample did reflect the preponderance of relatively small Pueblo II sites and the relative proportions of sites dating from the more common later periods of occupation. The BLM draft EIS recognized that some of the rarer types of sites could be present within the unsurveyed portions of the proposed Federal lease but the existing sample seemed to be a reasonable indication of the types of sites that might be present.

Analysis of the formal BLM sample within the proposed lease area indicated that an average site density of 31 sites per square mile could be expected. This suggested that as many as 330 sites could be present within the 6,840-acre Federal lease area. The large block survey (Hogan 1985) for the adjacent State lease areas recorded 240 sites within 9,760 acres, which calculated to an average density of almost 16 sites per square mile, or approximately half the density in the BLM sample. It was anticipated at the time that the information from the large block survey would provide a more reliable estimate of actual site densities in the Federal lease area because the small 40 acre sample quadrants are subject to an "edge effect" that inflates density estimates due to the high ratio of survey unit boundaries to survey area (Plog and others 1978).

When the State and Federal lease surveys are combined there are a total of 266 sites within 10,320 acres or about 16.5 sites per square mile. Since the two lease surveys constituted a 58 percent sample of the combined leases, it was projected that a total of 459 sites would be present within the proposed mine. A total of 176 sites are projected to be located on the Federal leases. Therefore, it seems reasonable to expect that an additional 130 sites would be recorded on the proposed Federal lease parcels when surveyed. The BLM draft EIS also pointed out, however, that the actual number of sites may vary from these estimates once a complete inventory was conducted.

It was anticipated that the sites would be dominated by limited activity and small habitation sites dating from the Pueblo II period, but a number of Archaic era and undated lithic scatters along with some Pueblo III and historic (mostly Twentieth century) sites will also be present. Other site types, Paleoindian, Basketmaker and Pueblo I, were likely to occur in much lower frequencies. No estimates were presented for the likelihood of locating traditional cultural properties. Habitation sites were expected to be predominantly small to medium-sized. Finally, none of the very large primary habitation sites recorded elsewhere within the region were anticipated within the lease area.

As part of its draft EIS, the BLM identified a dozen named sites within the region that could have special significance for local Native American groups (see BLM draft EIS, Figure 3-13). These included the well-known Zuni Salt Lake and the associated salt pilgrimage trails. Other sites were not as well documented, but were believed to lie within the vicinity of the proposed mine permit area and railroad corridor. The BLM, in its record of decision for the Federal coal lease, provided that the Native American concerns would continue to be considered as the proposal for the surface coal mining permit was developed.

2. Proposed Fence Lake Surface Coal Mine

a. Current Cultural Resource Data Base

Since the completion of the BLM leasing action, the entire proposed Fence Lake mine consisting of the balance of the Federal, State, and private coal leases and lands and associated 44 miles of railroad corridor have been extensively inventoried for cultural resources. Additionally, SRP commissioned a series of ethnographic and ethnohistoric studies of the proposed mine permit area and railroad corridor. These studies combined archival research and oral histories of the Zuni, Acoma, Ramah Navajo, Navajo and Hopi utilization of the area. The following discussion presents the results of these studies.

b. Archaeological Research

As presented in the SRP's PAP (Volumes 2,3,4, and 5, including Appendices 10-1 through 10-14), cultural resource surveys of the proposed mine permit area and railroad corridor have identified a total of 595 archaeological sites. Of these sites, 536 have been documented in the proposed mine and an additional 59 archaeological sites have been identified along the railroad corridor (31 in New Mexico and 28 in Arizona). As previously noted, many of the private and State lands were surveyed by the Office of Contract Archaeology in the 1980's (Hogan 1985; Elyea 1989). The majority of the Federal lands and portions of other lands were surveyed by the Zuni Cultural Resource Enterprise (ZCRE) in 1991 and 1992 (Bernard-Shaw 1993; Morris 1992; Morris 1993). Other smaller archaeological surveys have been completed as required throughout different stages of the mine planning process. These surveys are detailed in the ZCRE report by Bernard-Shaw (1993) and the Treatment Plan (Fletcher 1994).

The archaeological inventory of the railroad corridor was completed under two different projects. The Arizona section of the railroad corridor and a portion of the New Mexico section, were completed in 1986 (O'Brien 1987). An additional survey of borrow areas in Arizona was completed in 1991 (Greenwald 1993). The remainder of the New Mexico railroad corridor was completed in 1992 (Morris 1992). Recently, several surveys have been conducted on railroad corridor realignments (Gilpin and Anduze 1994a and 1994b).

Archaeological excavations have been conducted at a relatively few sites. A data recovery-program initiated at 8 prehistoric sites was completed in 1987, and is reported by the University of New Mexico (Hogan 1987). Testing for eligibility of sites associated with the railroad corridor in Arizona was completed in 1991 (Greenwald 1993).

Within the proposed mine permit area, many of the archaeological sites (213 or about 40% of the identified sites) would not be impacted by mining and construction activities and, therefore, would be preserved by avoidance.

It appears that most of the sites in the railroad corridor would be impacted by construction. As part of the PA an in-depth treatment plan, outlining procedures for both preservation and data recovery, has been developed. It provides that site specific data recovery plans will be prepared for each of the various phases of the proposed mine's development. The recovery plan for each phase would be reviewed for approval as provided for in the PA prior to implementation.

c. Cultural History of the Permit Area

As a result of the archaeological investigations made in the proposed mine permit area and railroad corridor, it is possible to provide a preliminary background of the prehistory of the Fence Lake mine area. The cultural history of the proposed permit area can be broken into a variety of categories for discussing the human populations that utilized the region. For the present discussion, six major periods are used to identify temporal as well as population and societal changes that have occurred throughout the history of the region. The major periods and following information are abstracted from SRP's PAP. The major cultural periods and prehistoric site types for the mine area, as assigned by survey information, are presented in Table 3-5.

Table 3-5 Mine Area: Prehistoric site type by temporal period.

	Paleo	Archaic	Pitstr-Ear Pueb	La Pueblo	ND	Oth	Total
AS	0	0	26	205	54	2	287
LS	3	52	2	0	93	1*	151
RMB	0	0	2	62	3	2	69
RS	0	1	0	3	0	1	5
RA	0	1	2	3	4	0	10
Petro	0	0	0	6	9	1*	16
	3	54	32	279	163	7	538

Abbreviations: AS=artifact scatter or ceramic scatter (would include pithouses, they were not broken out in ZCRE reports); LS=lithic scatter; RMB=roomblocks or masonry unit; RA=rock alignments or other rock features that may be associated with agricultural activities; Petro=petroglyphs; Paleo=Paleoindian; Pitstr-Ear Pueb=Basketmaker and Pueblo I to Pueblo I-II transition; La Pueblo=Pueblo II through III periods; ND=date unknown; Oth=other.
*possible protohistoric site

The Paleoindian period is generally dated to the 10,000 BC to 6500 BC time frame, although questions still exist on the actual beginning and end of the period. The Paleoindian period is characterized as small numbers of people living a very mobile hunting and gathering lifestyle.

Most Paleoindian sites represent animal-kill or butchering sites. Several Paleoindian sites have been documented near the permit area. In the mine permit area proper, however, only isolated Paleoindian artifacts have been found.

The Archaic Period (ca. 6500 BC - AD 400) is differentiated from the Paleoindian Period on the basis of settlement patterns, artifactual styles, and utilization of particular resources. The Archaic Period is characterized by mobile populations exploiting a geographically and environmentally diverse range of resources and an increase in the size and numbers of sites. Artifactual materials used to differentiate Archaic sites from Paleoindian sites include the use of groundstone for tools. In addition, discrete populations started to utilize local sources of raw materials for making their stone implements. Ceramic vessels do not occur during this period.

Archaeologists hypothesize that there were two cultural groups existing in the region in the Archaic Period: the Oshara (Irwin-Williams 1973) and Cochise (Sayles and Antevs 1941) traditions. Each tradition also has been divided into temporal phases. The traditions are identified primarily through projectile point styles and geographically different environmental locations. It has been suggested by previous research that the proposed Fence Lake mine permit area may represent an area of overlap between the Cochise and Oshara traditions (Hogan 1985).

Archaic sites are known throughout the region outside of the permit area. The Archaic utilization within the proposed permit area appears to be well represented and characterized by surfacial artifact scatters. It is possible that future excavations will provide data enabling archaeologists to distinguish the difference between residential and hunting or gathering sites.

The Pitstructure-Early Puebloan Period (ca. AD 400 - AD 900) represents an era differentiated from the Archaic Period on the basis of numerous settlement and artifactual changes, including the introduction of ceramics.

Within this period, two cultural traditions are identified: the Anasazi and the Mogollon. Both traditions are defined temporally by distinct changes in architecture and artifact assemblages. The Pitstructure-early Puebloan Period encompasses the Pecos Classification for Anasazi sites that includes the Basketmaker through Pueblo I phases, and the Mogollon sequence of Early Pithouse and Late Pithouse Periods. In general, the survey data indicate that this time period is not well represented within the proposed permit area. This period is manifested by surfacial artifact scatters most of which appear to be associated with an Anasazi occupation. Some sites do have brownware ceramics, generally believed to be indicative of the Mogollon, but recent studies have found that many of the brownwares are local wares that appear to have been crafted by the Anasazi.

The Later Puebloan Period (AD 900 - AD 1540) is differentiated from the earlier temporal sequence by the increase in above-ground architecture, the increase in the size of the pueblos, and the manifestation of regional ceramic styles and wares. This period is often divided into three temporally-sequenced periods based on the Pecos Classification terminology: Pueblo II, Pueblo III, and Pueblo IV periods. Pueblo II and transitional Pueblo II - Pueblo III sites are common within the proposed permit area, but no Pueblo IV sites have been found.

The Pueblo II period represents a time between approximately AD 900 - AD 1100 when there was a great increase in population, as witnessed by an increase in the number and size of sites. Groups of sites formed communities that were economically and socially linked to much larger villages. The larger villages had specialized architecture and probably held specialized responsibilities within the community network.

The Pueblo III (AD 1100 - AD 1300) period is identified as the time when the settlement system underwent a series of changes. Many smaller sites were abandoned and more people aggregated into the larger pueblos. Archaeologists have speculated that the change in the settlement system occurred at a time when the Chacoan regional system was going through a strong developmental phase, but the changes also continued after the demise of the nuclear Chaco village settlements.

Many sites dating to the time identified as the transition between Pueblo II and III periods are found within the proposed permit area. Fewer small Pueblo III sites were identified. No large Pueblo III villages exist within the proposed permit area, but large Pueblo III sites have been identified within the surrounding region. The proposed permit area, as a whole, appears to have been abandoned by prehistoric populations by approximately AD 1325. It should be noted, however, that the abandonment refers to permanent habitations only. The area was probably used for hunting and gathering of wild resources into the historic period. Hart and Ferguson (1993) contend that there is also evidence for prehistoric pilgrimages to the Zuni Salt Lake.

Archaeologists generally have used the term "Protohistoric" to refer to the period between the first Spanish explorations of the Southwest and the Pueblo Revolt (AD 1538 - AD 1680). It also is used to refer to the period that Athabaskan-speaking groups, now known as the Navajo and Apache, entered the region.

There is no clear evidence that the Spanish passed through the permit area. No sites clearly dating to this period have been found in the proposed mine permit area.

The Historic Period (AD 1681 - Present) begins at the era following the Pueblo Revolt and at a time that extensive historical records are available. Within the Southwest, the Historic Period represents a series of cultural movements including the re-establishment of the Spanish within the region, and the subsequent immigration of Mexican and Euro-American settlers. The latter part of the period witnessed the movement of the Ramah Navajo Band into the area northeast of the permit area. Table 3-6 presents a breakdown of the historic components of sites located in the mine area.

Table 3-6 Historic components of sites within the mine area.

	Pre-1940s	Post-1940s	Date Unkn	Total
Trash only	3	8	16	27
Corrals	5	2	8	15
Structures*	4	0	16	20
Navajo sites	0	0	2	2
Petroglyphs	2	0	7	9
Other	0	0	3	3
	14	10	52	76

*may include trash and corral components

Within the permit area, few identifiable Native American sites were found dating to this period. Several possible Navajo sites were reported. Historical records would suggest that the Navajo may have used the area. Other than the Salt trails there is little remaining physical evidence of historic use of the area by Native American groups. Several possible Native American shrines were found, but ownership, dates of use or their function are not known at this time. The majority of the historic sites are Euro-American or Hispanic and reflect activities associated with the cattle and sheep ranching that took place in the permit area after AD 1900.

d. Ethnohistoric Evaluations

As part of its draft EIS, the BLM identified a dozen named sites within the region that could have special significance for local Native American groups (see BLM draft EIS, Figure 3-13). Subsequent to the preliminary ethnographic work that resulted from the BLM draft EIS and the studies associated with the preparation of the PAP, a picture has developed of the ethnohistoric use of the proposed mine permit area and railroad corridor. The BLM, as part of its EIS process, spent considerable effort to identify any Native American tribe that may have an interest in this area and invited them to participate. Five groups expressed an interest to be involved in the leasing studies: Zuni and Acoma Pueblos, Ramah Navajo Band, Navajo Nation, and the Hopi Tribe.

During the BLM's EIS process, SRP contracted with the Institute of the North American West (The Institute) to undertake detailed ethnohistoric research. During the ethnographic research, and in conjunction with the research, BLM and SRP held extensive meetings with religious and political leaders of the interested tribes. These meetings, in combination with interviews conducted by the Institute, provided insight for the Federal agencies about Native American concerns and created a forum for inter-tribal interaction.

The Institute's research focused on the Zuni, Hopi, Ramah Navajo, Acoma, and Navajo Nation. It met numerous times with the tribes to discuss the various tribal concerns. Each tribe created a research team to work with the Institute. The teams were made up of individuals who possessed traditional and religious knowledge about the Zuni Salt Lake and proposed Fence Lake coal mine area. In addition to the archival and ethnographic research, including interviews, extensive on the ground field work was undertaken to provide the research teams from the interested tribes with an opportunity to see the proposed mine permit area and railroad corridor first hand.

Out of the meetings, consultations and field trips with the Native American tribal representatives, the Institute prepared a two volume report (Hart and Ferguson, et al. 1993). The study identifies several important traditional cultural properties (TCP) that may be directly or indirectly impacted by the proposed Fence Lake mine and railroad corridor.

e. Zuni Salt Lake and Associated Features

The Zuni Salt Lake is probably the most important traditional cultural resource identified in association with the proposed project. The Lake is located more than 9 miles southwest of the proposed mine permit area and approximately 3 1/2 miles south of the railroad corridor area. The Lake is considered by the tribes to be the most important traditional cultural property (TCP) and a focal point of religious activity. The Lake is considered to be eligible for the National Register of Historic Places by tribes, as well as the BLM and New Mexico SHPO. Although the Lake is located at a significant distance from the proposed mine permit area and railroad corridor, great concern has been raised by all of the tribes about possible impacts to the water of the Lake from mining and other mining-related impacts. Hart and Ferguson (1993) have presented extensive documentation on the Lake's historic importance to the Native American groups of the region. The Lake's salt resources were, and continue to be, used both for ceremonial and domestic purposes.

Several tribes also recognize a "neutral zone" encompassing a large regional area around the Lake, which extends into a portion of the proposed permit area. The neutral zone is an area in which tribes traditionally did not engage in hostile activities and where plants and animals were specially treated because of the zone's association with the sacredness of the Lake.

Also associated with the Lake are a number of salt-gathering pilgrimage trails. The trails have been identified only as discontinuous segments, based upon the interpretation of remote sensing data, aerial inspections, and ground inspection (pedestrian survey). Some of the trails documented through oral interviews could not be relocated by the tribal groups. The Old and New Zuni Trails, the Salt Woman Trail, the Acoma Salt Trail, and the Wenima Trail were identified as historic pilgrimage routes. The Hopi Ceremonial Trail could not be relocated. Finally, the Kiatsutuma Trail, a route traditionally used for trade between the Zuni and Apache, was also identified. The Acoma Trail occurs within the proposed mine area and it and the segments of the remaining trails have been located in the vicinity of the proposed railroad corridor. All known trails can be interpolated to cross the proposed railroad corridor.

f. Cerro Prieto and Shrines

Cerro Prieto, a large volcanic cone, is a prominent topographic feature located near the proposed mine headquarters. Both Ramah Navajo and Zuni Pueblo have assigned traditional value to the feature.

One shrine identified by the Acoma, the White Rock, is located within the proposed permit area. The shrine marks the boundary of the Acoma's neutral zone and is an important marker on their pilgrimage trail to the Salt Lake. Other shrines were identified, but they are outside of the proposed permit area.

g. Burials

All tribes have expressed strong concerns about the disposition of both prehistoric and historic human burials. Thus far, a single burial, associated with a prehistoric site in the Arizona section of the railroad corridor, has been located. Upon discovery, the body was left in place undisturbed and reburied with surrounding soil. Human burials could occur in some of the site types found within the proposed project area. In consultation with the Native American tribes, procedures are being developed to manage the disposition of human burials should they be encountered, consistent with NAGPRA, Section 106 of NHPA, the Programmatic Agreement, and applicable State laws. The procedures are included in a Memorandum of Agreement (MOA) that is being reviewed by the various parties. If the MOA is not ratified, burials would be treated under the requirements of applicable Federal or State laws.

3. Summary and Conclusion

The proposed mine permit area and railroad corridor have been fully inventoried for archaeological and cultural resources. The surveys were conducted at an acceptable level and in accordance with prescribed standards.

All of the archaeological sites and traditional cultural properties have been appropriately documented.

Extensive ethnographic research, including archival interviews and field investigations have been completed for the project area.

Evaluation of sites for eligibility to the National Register of Historic Places is ongoing.

The PA for the consideration of archaeological resources has been developed and executed, which provides the various Federal and State agencies and Indian tribes with a mechanism for consideration of cultural resources, consultation and dispute resolution.

The Treatment Plan has been developed and approved, as provided for under the PA, and site-specific data recovery plans for the first 5-year mining sequence are under development (see Cultural Resources in chapter 4).

A human burial Memorandum of Agreement has been developed and circulated among the various Federal agencies and Indian tribes for review and approval.

Consultations continue with the tribes on the appropriate way(s) to handle the treatment of traditional cultural properties (see Cultural Resources in chapter 4 for further discussion).

J. TRANSPORTATION

The BLM draft and final EIS did not include a separate section on transportation resources (Supplemental EIS, Volume II). The agencies have decided to include a separate analysis of transportation resources in this supplemental EIS since the PAP proposes a railroad for the transportation corridor that would operate for the life-of-mine and would involve some local road crossings. The existing transportation network in relation to the proposed Fence Lake project area is illustrated in Figure-1 in chapter 4.

U.S. Highway 60 is a two-lane, black-top road that provides the primary east-west transportation route for 49 miles between Quemado, New Mexico and Springerville, Arizona. U.S. Highway 180/U.S Highway 666 is a similar all-weather road that provides a primary north-south transportation route for 30 miles between Springerville and St. Johns, Arizona. U.S. Highway 666/Arizona Highway 61 is another all-weather route that extends north of St. Johns for 53 miles to connect with U.S. Highway 40. These highways are maintained by the respective State highway departments in New Mexico and Arizona.

A network of ranch, county and State secondary roads either cross through or are adjacent to the proposed project area. The vast majority of these roads support low traffic volume and are composed of either dirt or gravel surface material. In Arizona, County Road 6040 (Salt Lake Road) is maintained by Apache County. In New Mexico, County Roads A001, A034 (Hubbell Ranch Road), A012 (Hubbell Ranch Road), A029, A009, A037, and A028 are maintained by Catron County. County Road C35A, south from the town of Fence Lake to the county line, is maintained by Cibola County. US 60, NM 36, NM 601 and NM 32 are maintained by the New Mexico State Highway Department. Catron County currently utilizes a secondary road that intersects the Hubbell Ranch Road (A034) from the north near the proposed rail loop and facilities area. This road is regularly used as a "short-cut" route, but it is not part of the officially recognized county road network. Inclusion of the road in the official road network is under consideration by Catron County.

Within the proposed mine permit area there are also a number of undesignated ranch trails and ranch roads, which, if maintained at all, are maintained privately by the local landowners.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

A. INTRODUCTION

This chapter contains a supplement to the analysis of the environmental consequences of the proposed actions to resources in the Fence Lake project area that was presented in chapter 4 of the BLM draft EIS prepared in May 1990 (Supplemental EIS, Volume II). Relevant new information about probable impacts to the quality of the human environment that would result from surface coal mining operations at the proposed Fence Lake mine and railroad corridor are analyzed here. However, impacts that were analyzed in the BLM draft EIS are not re-analyzed here if no relevant new information has become available since 1990.

As stated in chapters 1 and 2, this supplemental EIS is being prepared to assess the potential impacts of the proposed mining plan and mining permit to mine Federal coal. The BLM's Fence Lake Project EIS (1990) was prepared on the basis of a "preliminary mine plan," which provided a reasonable estimate of the types and extent of mining impacts that could occur. In October 1993, SRP submitted a complete permit application package (PAP) to MMD, which included the proposal to construct and operate a railroad corridor in both Arizona and New Mexico. OSM has promulgated an Arizona Federal Program to regulate surface coal mining and reclamation activities in Arizona. The mine plan that is contained in the PAP, and has been used for this evaluation, addresses both the Arizona and New Mexico sections of the proposed project and is not expected to change substantially.

The EIS interdisciplinary team has not analyzed the environmental consequence of the proposed mine in isolation. Effects are considered as the difference between the total expected changes in each affected resource with the mine and railroad corridor and the total expected changes in that resource during the same period without the mine and railroad corridor. The team has discussed environmental consequences in terms of their context and intensity, using criteria set forth by the Council on Environmental Quality (40 CFR 1508.27), the total impact to the resource in the context of the resource within the region, the mitigation provided by the PAP, and the professional judgement of resource specialists on the team.

B. ASSUMPTIONS USED IN ASSESSING IMPACTS

For the purpose of analyzing the proposed project, the following assumptions were made that relate to the life-of-mine mining plan and PAP:

- Once determined administratively and technically complete by New Mexico MMD and OSM, the complete PAP, with any necessary conditions attached, would be in compliance with SMCRA.

- Impacts to coal supply or demand and impacts associated with the existing Coronado Generating Station are beyond the scope of this supplemental EIS.

- Labor, equipment and/or market shortages would not materially change the projected levels of coal development.

- Mining and reclamation technology is assumed not to change substantially through the end of the proposed mine life. Major changes in the technology of the mining operation would require a modification of SRP's PAP and would be subject to further environmental analysis.

- Assumptions concerning the geographic limits from which impacts are considered are identified in chapter 1.

- The life of the Fence Lake mine would be 50 years: 2 years premining development, 38 years of active mining and reclamation during which approximately 81.3 million tons of coal would be recovered, and a minimum of 10 additional years for final reclamation-bond release.

- Short-term impacts are defined as those that occur during the 50-year mine life through successful completion of reclamation as described above. Long-term impacts are defined as those that would persist beyond the life of the mine.

- An irreversible or irretrievable commitment of resources would occur when various resources are consumed, committed or lost during the project life. A resource is committed irreversibly when the current and/or potential productivity of that resource is lost and, once lost, can never be regained. A resource is committed irretrievably when the current and/or potential productivity of that resource is lost for the life of the mine but can be regained at some future time.

- Qualitative terms are used to describe anticipated impacts with regard to their content, duration, and intensity of the impact. Terms such as "major," "potential to become major," "moderate," "minor," and "negligible" describe intensity. Impacts having the "potential to become major" are those that could change in intensity depending upon certain changes in events or environmental conditions. These potential changes are identified in the text. Unless otherwise identified as "beneficial," the impacts described would be adverse.

- For this supplemental EIS, the cumulative impact assessment is the same as that described for the mine plan and permit-approval alternative; that is, the proposed Federal, State, and private coal areas would be mined as one unit. This area is identified as the "mine permit area" in this document.

C. LIFE-OF-MINE MINING PLAN AND PERMIT APPLICATION PACKAGE APPROVAL (ALTERNATIVE 1)

1. Climatology, Meteorology, and Air Quality

The impacts to air quality resources from the proposed Fence Lake coal mine as discussed in the BLM draft EIS (May 1990) were restricted to the immediate mine area and railroad corridor. See pages 4-3, 4-31 and 4-36 of the BLM draft EIS (Supplemental EIS, Volume II). BLM estimated the unmitigated total suspended particulate (TSP) concentrations, using a screening model, to be between 58 and 68 micrograms per cubic meter depending on the alternative selected. The National Ambient Air Quality Standard (NAAQS) for TSP was 60.

Air quality impacts are localized within the immediate area of disturbance at the proposed mining site and railroad corridor. The chief concern associated with air quality at coal mining operations is associated with fugitive dust containing large particulate matter that settles fairly rapidly in the immediate vicinity of the minesite. During coal mining operations, fugitive dust may include emissions from haul roads; emissions from blasting activity; wind erosion of exposed surfaces, storage piles, and spoil piles; reclamation operations; and other activities in which material is either removed, stored, transported, or redistributed. The transporting of the coal via the railroad would also result in fugitive emissions from coal carried in the railroad cars.

The company has proposed the following fugitive dust control plan to reduce fugitive emissions at the proposed mine site: periodic watering of haulroads on a daily or as-needed basis; chemical stabilization of unpaved roads; frequent beading and shaping of unpaved roads to stabilize the road surface; minimizing the area of disturbance; restricting the travel of unauthorized vehicles and restricting vehicle speed; revegetating, mulching, or otherwise stabilizing the surface of disturbed areas; prompt revegetation of regraded lands; reducing the period of time between initial disturbance of the soil and revegetation; and controlling the dust from the coal handling and loadout facility system with water and, if needed, chemical surfactant. The company has proposed to move the coal by rail instead of by trucks. This would greatly reduce fugitive dust emissions.

No additional specific air quality modeling has been done for the proposed Fence Lake mine. However, some general conclusions can be made based on detailed modeling done for other coal mining operations. EPA's Industrial Source Complex (ISC) model has been used to predict annual and 24-hour concentrations for large area surface mines in the Western United States, specifically, the proposed Alton mine (USDI, 1980) and the Black Mesa-Kayenta mine (USDI, 1990b). The results of modeling done for these two large surface mines showed that with the application of air pollution control measures, total suspended particulate and PM_{10} (dust particles less than ten microns in diameter) concentrations outside of the proposed permit area would be within Federal primary NAAQS. The modeling for the Alton mine predicted the maximum annual concentration for TSP at about 30 micrograms per cubic meter and the concentration falling off to around 5 micrograms at 2 to 5 kilometers. The modeling for the Black Mesa mine predicted the maximum annual concentration for TSP at about 30 micrograms and for PM_{10} at 7 micrograms. Both of these mines had an estimated annual coal production exceeding that of the proposed Fence Lake mine.

Based on the screening modeling done by BLM and the detailed modeling for other large mines, it is expected that the offsite PM_{10} concentrations of around 10 micrograms when added to the background concentration of around 15 micrograms would result in concentrations around 25 micrograms, which is well below the NAAQS of 50 micrograms for PM_{10}. The company has proposed an air quality monitoring network of three PM_{10} monitors to measure air quality: one at the mine site, one along the railroad corridor, and one at Zuni Salt Lake (see Figure 2). If any of these monitors show an unacceptable degradation in air quality, additional mitigating measures would be required at the mine.

For the short-term, the impacts to air quality would be minor and limited to the duration of mining and reclamation near the coal mine. Long-term impacts near the coal mine would be negligible. The increase in PM_{10} concentrations along the railroad corridor, where traffic volume would be one-unit train per day making a round trip, would be much less than near the mine and, therefore, also minor for the short-term. Long-term impacts along the railroad corridor would be negligible. The impact to air quality at Zuni Salt Lake would be negligible for both the short- and long-term.

The proposed Fence Lake project would have a negligible impact to climatology and meteorology resources over both the short and long term.

2. Earth Resources

a. Topography

The impacts to topography that were analyzed in the BLM draft EIS prepared in May 1990 were based on a preliminary mine plan. See pages 4-4, 4-31 and 4-36 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan contained in SRP's PAP generally supports the impact analysis made in the BLM draft EIS.

Most of the mining would occur above the lowest bluff that edges the alluvial valleys and would stop below the highest bluff in the Lower Moreno Hill Formation. Following reclamation, the lowest and highest bluffs would still be in place, but the two or three low bluffs that were between them would be replaced by a moderate slope. The only buttes that would be destroyed are a few low buttes that are capped by a sandstone within the Lower Moreno Hill Formation. These changes would be most apparent from the opposite sides of the alluvial valleys, but probably would not be noticeable at a distance of more than one or two miles.

Elsewhere mining would occur in areas of rolling land surface with thin sandstone ledges. These areas would be reclaimed to nearly the same land form, but without the sandstone ledges. The approximate original contours of topography in the mining area would be restored to blend physically with adjacent undisturbed contours, but the proportion of steep to gentle slopes would change. Final slopes in the mined areas would be backfilled and graded to the most moderate slope possible in order to restore the disturbed areas to the approximate original contours. Approximately 7,885 surface acres would be altered at the minesite during mining and reclamation. Impacts to topography in the short term would be moderate to major, and in the long term would be minor at the mine permit area.

Construction of the railroad would entail considerable cut and fill where the corridor crosses the gravel-capped ridges. It may be necessary to over-excavate the rail bed or to take other corrective measures where the corridor crosses the Chinle Formation because the Formation contains swelling clays. The rest of the area would not be noticeably affected by the railroad corridor, although there would be an occasional cut or fill structure. Following completion of mining, the railroad would be removed and the corridor converted into a permanent road. Approximately 547 surface acres would be altered along the railroad corridor during mining and reclamation. Therefore, relative to the surrounding area, impacts to topography from construction of the railroad would be minor in the short term and negligible to minor in the long term.

b. Geology

The impacts to geological resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See pages 4-4 and 4-31 of the BLM draft EIS (Supplemental EIS, Volume II). It projected: 1) the removal of 52 million tons of coal over a 35-year mining period, 2) the disturbance of 6,900 surface acres, and 3) the removal and backfilling of 600 million bank cubic yards of overburden. The proposed mine plan included in SRP's PAP for the Fence Lake mine corrects those preliminary estimates as follows: 1) mining would remove 81,300,000 tons of coal over 38 years, 2) approximately 7,885 acres would be disturbed in the process at the minesite, and 3) approximately 676 million bank cubic yards of overburden would be removed and backfilled.

Impacts to geology from the proposed project would be the removal of a nonrenewable resource, the alteration of the present rock units by blasting and ripping, and the modification of the stratigraphy by mixing the spoils and placing them out of geologic sequence in the mined-out pits. Disturbance would extend to a maximum depth of 200 feet. Other than the removal of the coal (which is the purpose of the mine), these impacts are minor, but long-term.

The normal mining and backfilling operations would mix any small pockets of potentially acid or toxic-forming material (PATFM) with better quality material, thereby diluting the PATFM. Larger bands or pockets of identified PATFM would be deposited as low in the pit as possible or pushed to one side to isolate them. This material would not be buried or stored where runoff from or through them would enter the water table or a surface drainage. After mining is completed in the area, these piles of PATFM would be returned to the pit (if they were not already there) and covered by at least 4 feet of non-toxic and non-combustible material prior to further reclamation. Any marginally suitable material would be placed below the root zone, above the water table, and outside any surface drainage, thus preventing any adverse impacts from the PATFM.

Impacts on the geology from construction of the mine facilities, roads, and railroad corridor would be minor and short-term. Most of the disturbance would be small, affecting mainly soils and perhaps 1 to 2 feet of the underlying geologic strata. Only in the larger cuts along the railroad corridor would there be much disturbance of the geology. Here an unknown amount of the geologic formation(s) that crop out would be removed. This would be a minor to moderate, long-term impact.

c. Paleontology

The impacts to paleontological resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See page 4-5 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan included in SRP's PAP for the Fence Lake mine would produce similar impacts to those already analyzed in the BLM draft EIS. No other substantial impacts to paleontological resources are anticipated. The following additional information is intended to supplement the BLM draft EIS.

- For any unanticipated paleontological discovery made in Arizona on Federally-owned land, SRP would, pursuant to a stipulation in the BLM right-of-way lease, notify BLM-Phoenix District Office and cease all mining activities until all necessary mitigation measures are taken and BLM issues written authorization to continue mining activities.
- For any unanticipated paleontological discovery made in Arizona that is on State land, SRP would, pursuant to the Arizona Antiquities Act, notify the Director of the State Museum.
- For any unanticipated paleontological discovery made in Arizona that is on private land, SRP would notify the land owner.

Impacts to paleontological resources from the proposed Fence Lake mine are expected to be minor over both the short and the long term. However, an unanticipated discovery could have a long-term impact that is beneficial to science.

d. Soils

The impacts to soil resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See pages 4-5 and 4-31 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan included in SRP's PAP for the Fence Lake mine contains additional information that has been used for this analysis.

Stripping soil from the land surface alters the biological, chemical, and physical characteristics of the soil that in turn contribute to its productivity. Activities at SRP's proposed Fence Lake mine would adversely affect the approximate 6,491,991 cubic yards (4,024 acre feet) of topdressing material that would be salvaged in the 7,885-acre disturbance area at the proposed mine. SRP also proposes to salvage topdressing material from 547 acres that would be disturbed within the approximately 1,306 acres comprising the railroad corridor and then reapply the material to the embankments adjacent to both sides of the railroad roadbed where revegetation would occur.

The activities of topdressing removal, storage and replacement would irreversibly alter some soil characteristics, including soil structure, texture, erodibility, salinity, biological activity, and nutrient content. Topdressing material at the proposed Fence Lake mine would be stockpiled for different lengths of time. Stockpiles 1, 2 and 3 would exist for 40 years, while the other 13 topdressing stockpiles would exist for a lesser number of years. Stockpiling of topdressing material would change the productive capacity of the material by decreasing nutrient content, native seed viability, and microbial activity.

The postmining productivity of the 7,885 disturbed acres at the minesite would probably remain at about its premining level, although productivity could actually increase because the reclaimed soils would be more uniformly thick. SRP would replace a minimum of 6 inches of topdressing over 42 inches of suitable spoil for a functional rooting zone of 48 inches. The overburden was sampled in accordance with MMD's Overburden and Soils Inventory and Handling Guidelines. SRP requested and received a waiver for analyzing their overburden samples for several parameters. The waiver included aluminum, arsenic, barium, mercury, nickel and silver, among others. The parameters listed in the waiver request have been shown by research and monitoring not to be problems in reclaimed coal mines in the western United States. The overburden sampling program did identify several samples of potentially acid- and toxic-forming material (PATFM) that exceeded New Mexico's suitability guidelines. These included Ph, sodium adsorption ratio, and selenium. However, PATFM would not adversely affect reclamation within the 4-foot rooting zone (see geology, chapter 4).

SRP has proposed a regraded spoil sampling program to identify any acid-forming or toxic materials. If, through the regraded spoil sampling program, unsuitable materials are identified in the top 42 inches, SRP would mitigate the materials either by exporting the unsuitable material, chemically treating the PATFM, or by other alternative methods acceptable to MMD and OSM. Also, after mining, any marginally suitable soils, such as those with clayey texture or higher salinity, would be mixed with other higher quality topdressing materials to a more uniform physical and chemical composition.

Productivity of postmining soils could also increase owing to a general reduction of slopes in the reclaimed landscape. Over the long term the productivity of all 7,885 acres disturbed at the minesite should equal or exceed premining productivity because mining would eliminate non-productive rock outcrop areas and reclamation would intermix relatively unproductive soils with those that were more productive. Replaced suitable overburden and topdressing should support the planned postmining land use of grazing and wildlife habitat. The impact of the proposed railroad corridor on soil resources productivity would be negligible over both the short-and long-term owing primarily to direct reapplication of approximately 30% of the soil and stockpiling of the remaining 70% for an average of six months before reapplication.

The impact of the proposed Fence Lake mine on soil productivity within the life-of-mine area would be minor over the short term and negligible over the long term.

3. Hydrology

The impacts to surface and ground-water resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See pages 4-7, 4-9, 4-31, and 4-36 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan included in SRP's PAP for the Fence Lake mine and further hydrological studies have produced additional information that is addressed in this supplemental analysis.

a. Surface Water

The impacts of surface mining on surface-water quantity within and adjacent to the disturbed area of the Fence Lake Mine project would be limited to the alteration of drainage patterns and infiltration rates of the reclaimed areas. These impacts should be minimal since all of the surrounding arroyos are ephemeral and the natural flow of the area has been somewhat altered by spreader dikes and check dams to harvest the limited amount of precipitation. These small structures reduce flow to the arroyos and thereby provide partial or complete retention of runoff.

Diversions - Flow from undisturbed areas would be diverted around the mine disturbances and facilities. Nine major diversion channels are planned for the life of the mine operation, three of which (D-2, D-3, and D-10) would be constructed prior to any disturbance in the first five-year permit term (See Figure 4). Based on information submitted with the PAP, peak flows were calculated for diversions proposed in the application.

Diversion D-2 is a diversion of Nations Draw that would be necessary to allow construction of the mine facilities complex, railroad loop and overburden and coal removal. This diversion is designed to convey the 100-year 24-hour event from a 92-square mile watershed. Peak calculated flow rate for this diversion is 3,540 cubic feet per second. Design geometry of the diversion is found in the PAP.

Diversion D-3 reroutes the flow of the drainage area of Garcia Lake around the mine plan area. The diversion is designed for the 100-year 24 hour event for a 6.9-square mile watershed. Peak calculated flow rate for this diversion is 292 cubic feet per second.

Diversion D-10 reroutes Strang Draw around portions of the mine permit area. The diversion would consist of a levee separating disturbed and undisturbed sections of the watershed. The watershed area is approximately 9 square miles and the peak calculated flow is 351 cubic feet per second.

The impacts of these diversions on surface-water quantity would be minimal over the life of the mine. Diversions may serve to concentrate overland flow and generally increase travel distances. The effect of longer travel distances and concentrated flows would be to allow slightly more water infiltration in the vicinity of the diversions.

Impoundments - The purpose of the impoundments at the Fence Lake project would be to collect runoff from areas in order to meet applicable standards prior to release from the permit area.

Disturbed area runoff would be collected in impoundments prior to being released into local stream channels. According to SRP's PAP, 23 impoundments are planned for the life-of-mine, of which two (SP-1 and SP-2A) would need to be constructed prior to the commencement of mining and facility construction (See Figure 4). These two impoundments would be adequate to control all disturbed area runoff during the first 5 years of mining.

Impoundment SP-1 would collect runoff from the first five-year mining area, the facilities complex, and the coal handling facilities. The impoundment would collect runoff from approximately 1,437 disturbed acres. The 10-year 24-hour storm event would provide about 41.34 acre-feet of runoff. The 100-year 6-hour storm event would produce a peak flow rate of 215 cubic feet second when routed through a full reservoir. Preliminary design of SP-1 is available in the PAP and a final design would be submitted for approval prior to construction.

Impoundment SP-2A would control runoff from the western portion of the mine that drains into Strang Draw. Runoff from approximately 287 acres would be controlled by this impoundment. The runoff volume for the 10-year 24-hour event is 8.26 acre-feet and the peak flow rate is 33 cubic feet per second when routed through a full reservoir. As with SP-1, the preliminary design is available in the permit and the final design would be submitted for approval prior to construction. Both impoundments have storage volumes in excess of 10 acre-feet, so the final impoundment designs would require the State Engineer's approval.

The impacts of impoundments on surface-water quantity would center around a decrease in peak runoff volumes to local arroyos. Impoundments would improve water quality for a short distance below the discharge point. Impounded water would also result in increased ground-water recharge in the vicinity of the impoundments, especially those impoundments that have a geological connection with alluvial aquifers. All impoundments are proposed as temporary impoundments and would not be left after mining.

Surface-water quantity impacts to Largo Creek above its junction with Nations Draw would be negligible. Below the junction with Nations Draw, the impact would be minor owing to the fact that the permit area encompasses less than 3 percent of the Largo Creek watershed. Surface waters from the Largo Creek-Nations Draw system do not drain to the Zuni Salt Lake so impacts to the waters of the Zuni Salt Lake would also be negligible. Impacts to lower Largo Creek and

Carrizo Wash associated with the railroad corridor would be limited to crossing of the streams and their tributaries, and interception of localized runoff. The stream crossings would be constructed to design criteria approved in the mining permit. The short- and long-term impacts to lower Largo Creek and Carrizo Wash would be negligible. Therefore, the short- and long-term impacts to surface water in the proposed railroad corridor would be negligible.

Alternative Water Sources - There are 9 ranch wells that are located within the proposed mine permit area. Two of these wells are not owned by SRP. Brown Windmill, located in T4N, R16W, section 31, is owned by the Browns, and the Taylor Windmill, located in T4N, R17W, section 23, is owned by the Cox Ranch.

During the first 5-year permit term, only one of the nine wells, the Brown Windmill, could be impacted by mining. The Brown windmill is located within the radius of influence of the alluvium water supply well 416-30-42. Depending on the use of the alluvium supply well, temporary drawdowns at the Brown windmill should be less 0.5 foot.

During the life-of-mine, 4 of the 9 ranch wells would be eliminated by mining. Three of the four wells are owned by SRP and the fourth is owned by the Cox ranch. Of the remaining 5 wells, 4 could possibly experience some temporary drawdown, depending upon the location of additional alluvium water supply wells and their level of use. Due to the downgradient position of these wells in relation to mining activities, they could experience some changes relating to water quality.

Four additional ranch wells are located outside the permit boundary within a radius of 1 mile. They are the Brown Headquarters well, Lucero Windmill, Apodaca Windmill, and the Cox Headquarters well. No impacts to these wells are expected.

Wells would be plugged and abandoned according to State Engineer specifications. No transfers of wells are presently proposed.

SRP has committed to replace any ranch well that is significantly impacted by either overburden and coal removal or by water supply wells with a comparable supply to the owner.

Water Rights - SRP has developed and declared 3 wells for utilization as water supply for the mining operations. They are as follows:

Water Right	Well	Location	Amount	Formation
02-155	317-11-14M1	Tejana Draw	50 gpm	Alluvium
02-153	FL36	Nations Draw	300 gpm	Dakota
02-154	416-30-42M1	Nations Draw	200 gpm	Alluvium

Additional wells were drilled into the Dakota Sandstone and the Atarque Sandstone and formal declarations for 4 additional wells were filed with the State Engineers office in April of 1994. SRP also holds the rights to all ranch wells within the Hubbell and Strang ranches.

b. Groundwater

Groundwater Quantity

SRP has investigated the hydraulic characteristics of several aquifers within the mine permit area to determine which aquifers are capable of providing sufficient quantities of water for mining activities and what effect mining would have on those aquifers. Aquifer tests were made on the alluvium, the coal aquifer, the Tejana Sandstone, the Atarque Sandstone, and the Dakota Sandstone.

Unconsolidated alluvium fills the valleys of most drainage ways in the area. At the confluence of Nations Draw and Frenches Draw, quaternary sand and gravel deposits reach a maximum thickness of nearly 190 feet. The water table in the alluvium is 30 to 50 feet below the surface. Mining blocks are located outside the areas of saturated alluvium except for one area near Garcia Lake and another between Frenches Draw and Nations Draw. Dewatering of these areas would create a local depression of the alluvial watertable that would approach zero at a distance of about 5,745 feet from the center of the dewatering areas.

Using the value of transmissivity of 2,258 gpd/ft measured by Brown (1989), a width of saturated alluvium of approximately 5,100 feet near the mine, and a hydraulic gradient of 0.004, the flow rate through the alluvium is estimated to be 32 gpm. Based on surface geologic interpretation and drillhole data, the estimated groundwater storage volume in the alluvium of Frenches Draw and Upper Nations Draw is equal to 19,980 acre-feet, based on a specific yield of 0.10. The 40-year mine demand is equal to 5,424 acre-feet, which is approximately 25 percent of the total water in storage in these valleys.

The Atarque Sandstone is another aquifer being considered as a source of water for mining operations. Specific capacity of the Atarque Formation, based on pump tests made in March of 1994, is about 0.35 gpm/ft of drawdown. The potentiometric surface for this aquifer was approximately 294 feet above the top of the formation at the test site.

The Hantush (1984) steady-state solution for leaky aquifers indicated that the Atarque sandstone is capable of producing up to 100 gpm. The average pumping rate at the estimated maximum coal production levels is 85 gpm. At this pumping rate, the estimated drawdown at 1,000 feet from the well would be 30 feet. The radius of zero influence for the well would be approximately 2,174 feet from the well.

The Dakota Sandstone is the other formation being considered as a source of water for mining operations. In the permit area, the Dakota Formation is under artesian pressures that represent a head of 940 feet above the top of the formation. Pumping tests indicate a specific capacity of 2.2 gpm/ft of drawdown.

The average pumping rate that would be used by the mine at estimated maximum coal production levels is 85 gpm. At this rate, drawdowns at 1,000 feet from the production well should be about 1.15 feet. The radius of zero influence for the well is calculated to be about 3,700 feet under steady-state conditions.

These three aquifers (the alluvium, the Atarque Sandstone, and the Dakota Sandstone) each apparently contain sufficient amounts of water to fully supply the mining operations. The proposed Fence Lake mine should not have adverse consequences on the hydrologic balance nor would it negatively impact the water resources of the mine permit area or adjacent areas.

Groundwater Quality

Water quality for the alluvium is generally of the sodium-bicarbonate type. Alluvial water quality at several locations is above New Mexico Drinking Water Criteria for fluoride and manganese. Total dissolved solids values also approach 650 mg/l, which, when combined with fairly high alkalinity, makes the water less than desirable for irrigation purposes. These qualities of alluvial water, which is generally located at shallow depths, make the water less than desirable for domestic use, but the lack of alternate choices (water depth/economic cost) makes the alluvial water the only feasible choice.

After mining is completed and the spoil slowly re-saturates, groundwater quality in the alluvial aquifer would change as groundwater comes into contact with the spoil. Groundwater in the alluvial aquifer would mix in the spoil material. Assuming that spoil ground water quality is similar to overburden saturated paste extracts, groundwater in the spoil aquifer would be expected to have a conductivity of approximately 1,300 umhos/cm and a pH of 7.8. The premining water quality of the alluvial aquifer has an average conductivity of 675 umhos/cm and an average pH of 8.2.

Groundwater quality in the Tejana Sandstone and lower aquifers (Atarque Sandstone, Dakota Sandstone) is not expected to change because groundwater of these aquifers should not come into contact with groundwaters of the spoil aquifer.

ZUNI SALT LAKE

The two main concerns involving the Zuni Salt Lake and possible impacts caused by mining are the interruption of the water sources to the lake and changes in the quality of the salt in the lake. Mining operations would use the water in the alluvium and disturb the alluvium in the areas where it is underlain by coal. Mining operations would also disturb the coal aquifer. Water supply for mining operations would use water from the alluvium, the Atarque Sandstone, and the Dakota Sandstone.

The alluvial system at the mining operations is tributary to the Largo Creek as it passes the Zuni Salt Lake, but there is no hydrological connection between the alluvium of Largo Creek and the crater of the Zuni Salt Lake. Any changes in the quality or quantity of the waters of the alluvium at the mining operations that could be transported downstream in Largo Creek would not be transferred to Zuni Salt Lake owing to the lack of a hydrologic connection.

The coal aquifer at the mining operation would obviously be disturbed. In areas where the coal is saturated and acts as an aquifer, the water in the coal would most likely drain from the coal into the pit and eventually evaporate. The portion of the Moreno Hill Formation that contains the coal has been eroded away at the Zuni Salt Lake. Consequently, there is no geologic or hydrologic connection between the coal-bearing portion of the Moreno Hill Formation at the mine and the Zuni Salt Lake. Effects of mining on the coal aquifer cannot be transmitted to the Zuni Salt Lake.

The Atarque Formation is probably present at the Zuni Salt Lake and in the proposed mine area. Sandstone outcrops in the walls of the interior of the Salt Lake contain fossils similar to those found in other outcrops of Atarque Sandstone. The Atarque Sandstone is a regional aquifer and would most likely be used as a source of water for the mining operations. The formation also crops out in several areas between the proposed mining operation and the Zuni Salt Lake and is breached by Largo Creek approximately 4 miles from the lake. The breach of the Atarque Formation by Largo Creek creates a hydraulic break between the mining operation and the Salt Lake. Therefore, pumping the Atarque Sandstone at the mining operations should not have an effect on the Atarque Sandstone at the lake.

The deepest water supply well at the mine would be completed in the Dakota Sandstone. The Dakota is present at both the mine site and the Zuni Salt Lake and is most likely laterally continuous. Although the formation may be laterally continuous, the main body of the Dakota Sandstone has thinned from east to west from approximately 105 feet at the mine to 10 feet at the Jerry Well, which is about 3 1/2 miles from the lake.

At the proposed mine permit area, the Dakota Sandstone has an artesian pressure head that is 940 feet above the top of the formation. For pumping rates of 85 gpm, the average pumping rate at estimated maximum coal production levels, the radius of zero influence is calculated to be 3,700 feet from the pumping well under steady-state conditions. To insure that pumping the Dakota Sandstone at the mine site would not have any effect on the Zuni Salt Lake, a monitor well has been placed between the production well and the lake, approximately 2 miles from the production well. Should the monitor well show differences in head outside historic natural variation levels, then the mine would be required to use another water source until potentiometric levels return to normal levels. Monitoring would also be conducted on a quarterly basis within the Zuni Salt Lake, at which time water samples would be drawn from several points within the lake including the cinder cone (see Figure 2).

The Dakota Sandstone is the lowermost aquifer that could be affected by mining. The Dakota is separated from lower aquifers by an effective aquitard in the Chinle Formation, which is nearly 750 feet thick in the mine area.

Approximately 550 feet beneath the Chinle Formation lies the Yeso Formation, a Permian Age formation containing numerous evaporite deposits including halite, gypsum, and anhydrite, making waters from this formation too salty for many uses. In Arizona, where the Yeso is called the "Supai," and the formation is under artesian pressure, it has been known to contaminate fresh water in overlying formations. The Yeso Formation is the most likely source of the salts in the Zuni Salt Lake. Mining should have no impact on the Yeso Formation.

CONCLUSION

From the information provided in the PAP and the hydrologic studies that have been made in the Fence Lake project area, including the Cumulative Hydrologic Impact Analysis (CHIA) prepared by MMD in 1994, it appears that the proposed surface mining and reclamation operations within the Southern Salt Lake coal field would have no material damage on the hydrologic regime used for domestic or ranching purposes, or on the waters of the Zuni Salt Lake. Mining operations could result in a slight drawdown of the aquifers in the vicinity of the minesite during the life-of-mine, which would be a minor short-term impact. The railroad corridor would have negligible short-term impacts and, after conversion to a permanent road, negligible long-term impacts on the hydrologic regime. The long-term impact to the hydrologic regime, including the aquifers, would be negligible. Both the short- and long-term impacts of the proposed Fence Lake mine on the waters of the Zuni Salt Lake would be negligible.

4. Biological Resources

a. Vegetation Resources

(1) Vegetation

The acreages of vegetation types present on the proposed mine permit area are shown below in Table 4-1, along with acreages that would be disturbed under this alternative. Figure-3 shows the location of mining disturbance areas within the area of the vegetation survey.

Table 4-1
Disturbance Acreage by Vegetation Type

Vegetation/Habitat Type	Mine Area (acres)	Corridor (acres)	Combined Area (acres)	Percent of Disturbance	Percent of Habitat Type in Study Area[1]
Juniper-blue grama	2,459.97	127.01	2,586.98	30.7	40.0
Saltbush-alkali sacaton	1,056.16	147.08	1,203.24	14.3	26.5
Rabbitbrush-blue grama	2,979.52	154.76	3,134.28	37.2	44.2
Mixed grass	1,134.95	72.03	1,206.98	14.3	17.0
Mixed grass sodic	0.00	45.32	45.32	0.5	100.0
Short grass	190.32	0.00	190.32	2.3	61.5
Greasewood-alkali sacaton	64.17	0.00	64.17	0.8	20.9
Wetlands	0.00	0.50	0.50	0.006	3.3
TOTALS	7,885.09	546.70	8431.79		

[1] Calculated using Table 3-1, Acreage within Study Area by Vegetative Type

The majority of the impacts would result from the mine pit areas. Approximately 95 percent of the vegetation disturbed in areas of pits, diversion ditches, and the facilities area would eventually be reclaimed. The other 5 percent would be lost in areas of the on-site access road, ponds, and transmission line right-of-way that are proposed to be retained as part of the postmine land use. Along the railroad corridor between the proposed mine and the Coronado Generating Station (CGS), most of the vegetation would be lost because a postmining road would replace the railroad line.

The existing vegetation on areas to be disturbed would be replaced by a seed mix composed of native grasses, forbs, and shrubs that have been approved by the regulatory agencies involved. Table 4-2 lists the species included in the approved seed mix. The juniper-blue grama vegetation type would be replaced by herbaceous species because of the difficulty of reestablishing junipers. Junipers removed during mining would be disposed of in accordance with Federal or State regulations. Shrub densities throughout the disturbed area would be reduced even though shrub species are included in the seed mix.

Table 4-2
Revegetation Seed Mix

Grasses	Forbs	Shrubs
Arizona fescue	blanket flower	fourwing saltbush
blue grama	shadscale	blue flax
Indian ricegrass	gooseberryleaf globemallow	winterfat
New Mexico feathergrass	Palmer penstemon	
sideoats grama	prairie coneflower	
galleta	purple aster	
western wheatgrass	purple prairie clover	
alkali sacaton	rocky mountain penstemon	
sand dropseed	showy goldeneye	

SRP plans to implement other mitigative activities such as fencing, replacement of water supplies lost during mining, and additional revegetation, if necessary. Vegetation must be restored to equal 90 percent of the cover and productivity of two reference areas approved by MMD. Revegetation along the railroad corridor in Arizona would have to meet the requirements of OSM's Arizona Federal program. The reference areas are dominated by the mixed grass vegetation type, but include juniper-blue grama and rabbitbrush-blue grama vegetation types. Comparisons would be made during the last 2 years of the liability period, which begins after the last seeding and extends for a minimum of 10 years. Therefore, although vegetation would be drastically disturbed during mining, which would result in a moderate short-term impact, most of the long-term impacts would be minor because the proposed postmining land use is grazingland and the revegetation seed mix would be well suited for this use. The loss of the juniper-blue grama habitat would be long-term and moderate.

(2) Threatened and Endangered Plant Species

Thirteen sensitive plant species have been identified as potentially occurring on the mine permit area and railroad corridor in New Mexico (Table 3-2). Searches for threatened, endangered and other sensitive species were conducted in 1983, 1984, 1986, 1992, and 1995. SRP has also committed to additional surveying between April and July of 1996 in order to determine the presence or absence of Parish's alkali grass, a Federally listed endangered species. None of the species have been found within the permit area or railroad corridor to date and, owing to a lack of suitable habitat, it is unlikely that any of the listed species occur in the area that would be impacted by the proposed project. For this reason, both long- and short-term impacts to threatened and endangered and sensitive plant species would be negligible. However, if populations or individuals are found on sites that would be disturbed, mitigation strategies would be developed in concert with the appropriate State and/or Federal agency.

(3) Wetlands

Approximately one-half an acre of a wetland located near the Coronado Generating Station could potentially be disturbed by the proposed construction of the railroad corridor. The wetland was inspected by the U.S. Army Corps of Engineers (COE) in December 1994. Because of the limited area that would be disturbed, the COE determined that a Section 404 permit would not be required.

In August 1995 SRP conducted a survey of the wetland area to clearly define the species composition, wetland indicator status of the hydrophytic vegetation, and disturbance area of the wetland. As noted above, SRP has committed to additional surveying of the wetland area in order to determine the absence or presence of Parish's alkali grass. Based on the results of the survey work that has been completed, a wetland mitigation plan has been developed by SRP to replace the disturbed wetland on a 1:1 replacement ratio. In order to facilitate rapid hydrophytic vegetation establishment, the top 6-12 inches of soil from the disturbed area would be removed and placed as a lining in the new wetland. If hydrophytic plants have not sprouted in the new wetland after one year then whole plants would be transplanted from existing wetlands in the area. The determination of revegetation success in the wetland would be based on COE success standards and definition of a wetland. The short-term impact to the wetland would be moderate. Because of the 1:1 replacement, the long-term impact would be negligible.

The wetland would be designed with a primary discharge pipe set at an elevation sufficient for regulating the depth of the impounded water. An emergency spillway would be utilized to safely discharge excess storm water on the downstream side of the structure. Both the principle and the emergency discharge points would be oriented to allow discharged water to return to the primary swale that contains the existing wetland.

b. Wildlife Resources

(1) Wildlife

The impacts to wildlife resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See pages 3-38 through 3-45 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan included in SRP's PAP for the Fence Lake mine and further wildlife studies, have produced additional information that is addressed in this supplemental analysis.

The BLM EIS addressed impacts to mammals and birds by discussing the vegetation/habitat type and the associated disturbance to these types for the entire study area. The disturbance acreage by vegetation type has been corrected for the mine permit area, railroad corridor and study area in Tables 3-1 and 4-1.

(2) Impacts to Raptor and Mitigative Alternatives

Disturbance to nesting raptors, including golden eagles, prairie falcons, red-tailed hawks, and kestrels, from the construction and operation of the proposed mine permit area and railroad corridor could potentially impact breeding birds. Impacts to nesting birds would depend on the nest location relative to the construction/operations activities, the phase of the breeding period, and the duration of the disturbance. Disturbance to these species during sensitive courtship or incubation periods could cause an impact on breeding success.

Operation of the mine would probably preclude the use of the area by most raptors, which tend to avoid areas of intense human use. Raptors would likely avoid the active mining area, and they may avoid areas immediately adjacent to the operations as well, causing the loss of foraging area to be larger than just the disturbance area. Based on a raptor survey made in 1993, the only active raptor nest located in the mine area was a red-tailed hawk nest on Penthouse Mesa.

Laws protecting raptors include the Migratory Bird Treaty Act (MBTA), the Bald Eagle Protection Act (BEPA), and SMCRA. The MBTA states that it is unlawful to kill, capture, take, or attempt to take any migratory bird, nest, or egg of such bird. SMCRA states that no surface mining activity shall be conducted in a manner which results in the taking of a bald or golden eagle, its nest, or any of its eggs. The BEPA prohibits knowingly taking any bald or golden eagle, nests, or eggs, which includes collection, molestation, disturbance, or killing. If a nest is located in an area scheduled for disturbance, the operator, in consultation with the MMD and OSM, must obtain a permit to relocate the nest from the USFWS, or develop a mitigation plan to avoid disturbance.

SRP has committed to conducting annual spring breeding bird surveys that would concentrate on sensitive species nesting in the areas of influence of the mine. Prior to the initiation of construction of the railroad, nesting raptor surveys would be conducted in the spring and would be continued annually thereafter. If nesting raptors are located during these surveys, OSM would be notified immediately and a mitigation plan, as necessary, would be developed in consultation with the USFWS. Annual survey results would be submitted to OSM and MMD.

Historical nesting sites including a golden eagle, prairie falcon and red-tailed hawk could potentially be disturbed in the mine permit area. Prior to disturbance of these sites a permit must be obtained from the USFWS for moving the nest, if the sites are active. No historical nesting sites would be disturbed in the railroad corridor.

New powerlines coming into the mine area would be constructed in a manner that would avoid electrocution of raptors, therefore, no impacts from the construction of powerlines are anticipated.

Therefore, the proposed Fence Lake mine would have short-term minor and long-term negligible impacts to raptors in the proposed mine area and railroad corridor.

(3) Impacts to the Zuni Salt Lake and Vicinity

Several Indian Tribes and individuals have indicated a special reverence for wildlife in areas surrounding Zuni Salt Lake, which includes an avoidance of hunting during pilgrimages to the Lake. The land ownership associated with Zuni Salt Lake and the surrounding area is a combination of State, Federal, private, and tribal (Zuni Salt Lake). Disturbance to wildlife in this area would be restricted to those activities authorized by the mining permit and other associated laws such as the Endangered Species Act, MBTA, BEPA, etc. Hunting is regulated in this area by seasons and limits that are designated by the New Mexico Department of Game and Fish. No hunting would be permitted around the active operation on the mine. Hunting has occurred in this area in recent history and would most likely continue at the current levels except in those areas where it would be prohibited within the mine permit area. Therefore, the proposed Fence Lake mine would have negligible short- and long-term impacts to wildlife resources within Zuni Salt Lake and the surrounding area.

(4) Threatened and Endangered Species

The USFWS requested that BLM reinitiate consultation required under Section 7 of the Endangered Species Act prior to completing the final EIS for the leasing action. BLM prepared a Biological Assessment (July 1990) that addressed the potential impacts to the American peregrine falcon (Falco peregrinus anatum), black-footed ferret (Mustela nigripes), and the Mexican spotted owl (Strix occidentalis lucida). Based on the biological assessment, the USFWS concurred with BLM's "no effect" finding on July 26, 1990.

On October 11, 1994, OSM requested an updated list of species Federally-listed or proposed to be listed as threatened or endangered for the Fence Lake mine permit area and the associated railroad corridor. The USFWS responded on November 3, 1994 with the following list:

black-footed ferret (Mustela nigripes), Endangered

bald eagle (Haliaeetus leucocephalus), Endangered

Zuni (rhizome) fleabane (Erigeron rhizomatus), Threatened

Southwestern willow flycatcher (Empidonax trailii extimus), Proposed endangered with critical habitat.

The USFWS review of the draft supplemental EIS also included the interior least tern (Sterna antillarum) as a species that could occur near the project area.

On September 24, 1995 OSM prepared a biological assessment addressing the potential impacts that the proposed project would have to the above listed species. At the request of USFWS additional information was submitted on the potential impacts to Parish's alkali grass. The only potential habitat for this grass species would be at the wetland site located along the railroad corridor in Arizona near the Coronado Generating Station. This wetland was surveyed in August of 1995 to determine species composition and extent of wetland that could potentially be impacted by the railroad construction. Parish's alkali grass was not noted in this survey; however, the survey was not conducted during this species' flowering period. SRP has committed to conduct an additional survey of the wetland between April and July of 1996 in order to determine the presence or absence of this species. If OSM decides to issue a permit for the railroad transportation corridor in Arizona, the permit would contain a stipulation that this survey must be completed and the results submitted to OSM for review prior to any disturbance of the wetland area. OSM will continue informal consultation under Section 7 of the Endangered Species Act until the survey has been completed.

On October 10, 1995 the USFWS concurred with OSM's determination that the proposed mine and transportation corridor would not affect the black-footed ferret, bald eagle, interior least tern, Mexican spotted owl, southwestern willow flycatcher, and Zuni fleabane.

Species that inhabit riparian environments, such as the Little Colorado Spinedace, would be impacted if there was a substantial reduction in water quality or quantity. However, the cumulative hydrologic impact assessment prepared by the New Mexico MMD (see hydrology in Chapter 3) determined that the primary impacts to surface water within and adjacent to the project would be limited to the alteration of drainage patterns and infiltration rates on the reclaimed areas. The study concluded that the project would have no material damage affect on the local hydrologic regime. Therefore, the proposed project would have negligible short-term and long-term impacts on such species.

The Arizona Game and Fish Department (AGFD) reviewed the proposed railroad corridor in Arizona and determined that this portion of the operation would have no adverse impacts on wildlife resources in the area. The AGFD also accessed the departments's current records in the Heritage Data Management System and determined that there were no records of threatened or endangered species or other special status species in the project vicinity.

5. Land Use and Recreation

The impacts to land use and recreational resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See page 4-20 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan included in SRP's PAP for the Fence Lake mine provides additional information that is addressed in this supplemental analysis.

Under the proposed mine plan, livestock grazing would be the postmining land use in the mine permit area and along the railroad corridor. Planning for postmining land use in the area would concentrate on maximizing the productivity of grazingland in order to enhance cattle ranching.

The proposed mine permit area would be located approximately eight miles northeast of the Eagle Peak and Mesita Blanca Wilderness Study Areas (WSA). The railroad corridor would be located 3.5 miles north of the northern boundary of the Eagle Peak WSA and 6.5 miles north of the Mesita Blanca WSA (See Figure 1). Owing to the distance of the proposed mine permit area and railroad corridor from the WSAs, the construction and use of these facilities would have no more than negligible short and long term impacts on the WSAs.

Approximately 2,000 acres of BLM-designated Fence Lake Special Management Area (SMA) would be included within the proposed mine permit area (See Figure 1). Mining activities would disturb an estimated 1,418 acres of the Fence Lake SMA. The reclamation plans proposed by SRP in its PAP exceed the requirements of BLM's management goals for the SMA. Therefore, both short and long term impacts would be negligible.

As proposed in the permit application package, the railroad track would be removed at the completion of mining operations and the railroad corridor would be converted to a permanent road. This would be achieved by removing rail ties and rails and then spreading the majority of the ballast over the roadbed surface. The 69kV powerline would also be left adjacent to the permanent road. The remaining road surface would be opened to traffic. The primary use of the road and powerline would be to facilitate the management and implementation of livestock grazing. Grazing would occur in the corridor up to the sides of the road.

Most of the Arizona section of this permanent road would remain a private road since it would be on private land. However, small portions of the road would cross Federal and State lands and would come under the jurisdiction of the BLM and the State of Arizona, respectively. The New Mexico section of the permanent road could either remain under private ownership or be made available to either Catron County or the State of New Mexico. If any of the landowners in either Arizona or New Mexico would not grant written permission to leave a permanent road with an adjacent powerline, then SRP would be required to reclaim such surface areas in accordance with applicable Federal and State regulations.

During the life-of-mine, active mining in one area would not affect livestock grazing in other areas scheduled for mining later in the 38-year mining period. Therefore, short-term impacts to land use in the minesite area would be moderate. Long-term impacts to land use in the minesite would be negligible since disturbed vegetation must be restored to at least 90 percent of its original condition.

During the life-of-mine, grazing would continue to occur along the fringes of the railroad operation, where the right-of-way generally varies from 150 to 250 feet in width. Therefore, the railroad operation and livestock grazing would coexist within the corridor, and the short-term impact to land use would be moderate. The long-term impact to land use would be minor since the purpose of the permanent road and adjacent powerline would be to facilitate the operation of livestock grazing for the local ranching economy.

Recreation is informal and dispersed in the project area, with a low volume of activity. Recreational access and associated activities such as hunting would be restricted in the active mining and facilities areas during the life-of-mine. Therefore, impacts to recreational resources from the proposed Fence Lake mine would be minor for the short term and negligible to minor for the long term.

6. Esthetics

The impacts to visual resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See page 4-21 of the BLM draft EIS (Supplemental EIS, Volume II). An analysis of noise impacts, which was not included in the BLM draft EIS, has been added to this section on esthetic resources.

a. Visual Resources

The proposed mine plan included in SRP's PAP for the Fence Lake mine would produce similar impacts to those already analyzed in the BLM draft EIS.

The only substantial new information concerning visual resources that was not analyzed in the BLM draft EIS is the proposal to construct a railroad with an adjacent maintenance road and powerline rather than a haulroad in the transportation corridor. The amount of surface disturbance required by the railroad corridor would be approximately the same as required by a haulroad. However, the operation of the railroad would produce less dust that could obstruct visibility and would result in less traffic volume along the corridor. The normal traffic volume on the railroad corridor would consist of one-unit train per day making a round trip, which would have a minor short-term impact on visual resources. The conversion of the railroad to a permanent road after the end of mining operations would have a minor long-term impact on visual resources.

Visibility of the 69 kV powerline structures adjacent to the railroad would be limited to approximately one mile at ground level. Beyond one mile, there would be a noticeable decrease in visibility with additional distance. Visibility from elevated topographical features would also depend upon distance and viewpoint. The steep-sided mesas and buttes that are characteristic of the area would form much of the background vista into which the powerline would tend to blend visually from more than one mile. The primary public viewpoints from which the powerline would be visible would be the Coronado Generating Station, Catron County Road A001, the intersection with New Mexico State Highway 601, and portions of the Hubbell Ranch Road. Secondary viewpoints would exist on various private ranch roads and trails to which public access is generally restricted. Short- and long-term impacts from the powerline to visual resources would be minor.

During mining operations at the minesite, short-term impacts to visual resources would include disruption of views as a result of dust and visibility impairment, vegetation clearance, landform modification, use of lights, dragline and ancillary facility visibility, and general appearance of the mine area. These short-term impacts would be moderate to major. Based on the ultimate appearance of the landscape after reclamation, the long-term impact to visual resources would be negligible after restoration of topography to approximate original contour and revegetation of the mined area.

b. Noise

The principal contributors to noise in the proposed Fence Lake project area would be haul road traffic, blasting, and the railroad operation. The production of noise from both the minesite and the railroad corridor would be episodic rather than constant.

The only residence situated inside the proposed mine permit area is the Hubbell Ranch headquarters, which is located next to the proposed facilities area and is owned by SRP. There are no other permanently occupied residences located within 1/2 mile of the minesite permit area or within 3/4 mile of any active mining area. There are no permanently occupied residences within 1/2 mile of the railroad corridor.

Noise impacts along the railroad corridor would normally occur only during the operation of the one-unit train per day, or when maintenance work took place in the railroad corridor. Over the short-term such noise impacts would be minor. The long-term noise impact from a remote, low traffic volume, permanent road would be negligible. Noise impacts at the minesite would be minor over the short-term and negligible over the long-term.

7. Socioeconomics

The impacts to socioeconomic resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See page 4-22 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan included in SRP's PAP for the Fence Lake mine provides additional information for this analysis. The principal changes in the proposed mine plan are: 1) the decision to construct a railroad corridor, and 2) the increase in expected production of coal over a 38-year mining period to 81.3 million tons.

Updated information has been developed from the PAP and from additional data furnished by SRP at the request of the agencies (see Appendix A). Construction of the mine facilities and railroad corridor would take up to 2 years and cost about $61 million total, with construction costs estimated at $26 million for the mine facilities and $35 million for the railroad corridor. The construction workforce would vary in numbers and length of employment depending on particular phases of construction. Ultimately, the construction work force would reach a temporary peak of about 160 persons with a cumulative total payroll of $1.5 million. About 100 of these workers would be needed for construction of the railroad corridor. Operation of the mine over 38 years would require a work force numbering between 74 and 134 workers. Total operating and maintenance expenses are projected to run between $24 and $28 million per year, of which wages and salaries would amount to about $4.7 million. Capital expenditures for new equipment and upgrading of facilities would average about $3.1 million per year. Operation and maintenance of the railroad corridor would cost an estimated $1.7 million per year and would involve about 10 workers.

Construction of the Fence Lake mine and railroad would be expected to employ between 100 and 160 persons, with a total salary of $1.5 million. During construction, about 20 percent of the work force would be hired locally. It is anticipated that at least half the hourly and one-third of the salaried positions at the operating mine and railroad would be filled by local residents. The company does not plan an intensive effort to obtain local hires, but once the permit for the mine and railroad is issued, SRP and its construction company would accept applications from all qualified residents. This would generate an unknown number of other jobs and income in the study area.

Operation of the Fence Lake mine over its scheduled 38-year production life would make the project the largest single source of wage and salary income in Catron County and a significant contributor to the economy of the study area. Employment would range from 74 jobs during the first year of operation to 134 jobs during years 3 through 40. It is estimated that the payroll would amount to about $4.7 million per year.

The operation phase of the railroad would involve considerably fewer employees than the construction phase. The decision to construct and operate a railroad corridor also means that fewer employees would be required than if a haulroad were constructed. SRP's revised employment projections indicate that the number of employees required to operate the Fence Lake mine has been downsized from 140-190 (BLM draft EIS) to 74-134 (1995 estimate). These projected employment decreases would appear to somewhat offset the positive socioeconomic benefits to be gained from increasing the amount of coal to be mined and adding 3 years to the life-of-mine. The projected employment decreases also mean that the Fence Lake project's impact to local social services and housing would be somewhat less than was suggested in the BLM EIS.

Over the short term, the 2-year construction phase for the railroad would produce a moderate, beneficial impact to socioeconomic resources in the study area; which would become negligible for years 3 through 40 when the railroad is fully operational. The long-term socioeconomic impact of the permanent road that would replace the railroad after the end of mining would also be negligible since it would be a rural road used for ranching purposes, while other existing roads would continue to provide more convenient and direct routes between the local communities.

The Fence Lake mine would have a major, beneficial impact to socioeconomic resources in Catron County over the short term. It would have minor to moderate impacts to other parts of the study area in Cibola County and Apache County. The 10-year final reclamation phase after the end of active mining would be a transitional period during which socioeconomic impacts would become minor before finally declining to negligible for the long term in all parts of the study area.

8. Cultural Resources

The impacts to cultural resources that were analyzed in the BLM draft EIS (May 1990) were based on a preliminary mine plan developed by SRP. See page 4-27 of the BLM draft EIS (Supplemental EIS, Volume II). The proposed mine plan included in SRP's PAP and further archaeological and ethnographic surveys have provided additional information that is evaluated in this supplemental analysis.

The BLM draft EIS prepared for the Federal leasing action indicated that detailed impact assessments would follow completion of inventory surveys, evaluation of site significance, and development of a final mine plan if the proposed lease were granted. Additionally, it was recommended that if the proposed lease was granted, cultural resources would need to be considered further in the mine planning phase. The BLM EIS indicated that the next stage of planning should involve:

- Further resource inventory, which would include completion of the archaeological inventory and following-up appropriately on the Native American contact program initiated in conjunction with preparation of this supplemental EIS.

- Negotiation of a Programmatic Agreement (PA) that would specify how the regulations for "Protection of Historic Properties" (36 CFR Part 800) would be implemented for this particular project.

  The PA could identify a process for preparing and reviewing a plan for further inventory, evaluating the significance of identified resources, conducting impact assessments, and developing and implementing treatment strategies.

- Should further ground disturbing activities be undertaken as a result of the lease itself, procedures should be implemented to ensure that no cultural resources are adversely affected.

Owing to the fact that the lease was approved and a PAP has been submitted, the BLM EIS is being updated and revised to incorporate new cultural resource information. In addition, a full assessment of potential impacts from mining and related operations, including the construction of a railroad corridor, are presented.

Cultural resources are by nature nonrenewable. The land disturbance activities associated with surface mining would destroy any cultural resources located directly within the proposed disturbance areas of the mine and railroad corridor. Although the proposed mine permit area would consist of 16,813 acres and the railroad corridor of 1,306 acres, only 7,885 acres at the mine (47% of the mine permit area) and 547 acres in the railroad corridor (42% of the railroad corridor permit area) would actually be disturbed by mining and related operations. Such direct mining impacts, either in whole or in part, represent a long-term, irreversible, and irretrievable commitment of those cultural resources eligible to the National Register of Historic Places (NRHP).

Archaeological sites are typically deemed eligible to the NRHP because of their potential to yield important information about the past (criterion d). It is possible that some of the archaeological, historical and Native American sites might also be deemed eligible because of their associations with broad patterns of our history (criterion a), or because they embody distinctive characteristics of a type, period, or method of construction (criterion c). Any Native American resources related to important persons or mythical beings or gods could also be considered significant because of those associations (criterion b) (see Parker and King 1990). Regardless of what criteria the individual resources meet, available inventory data suggest numerous significant cultural resources are present within the project area.

A total of 536 archaeological sites have been identified within the actual proposed mine permit area. The BLM and SHPO have determined that 141 sites are eligible to NRHP, eligibility is pending for 84, and further information for 191 sites is necessary before eligibility can be finalized. The remaining 120 sites have been found not eligible (See Table 4-3).

Fifty-seven archaeological sites have been identified along the railroad corridor and ancillary areas, outside of the proposed mine permit area, 27 in Arizona and 30 in New Mexico. Thirty-six sites have been determined eligible for the NRHP by the BLM and the appropriate SHPO. It also has been determined that 19 sites are not eligible, and further information is needed for 2 sites before eligibility can be determined (See Table 4-4).

Ten ethnohistoric properties have been identified within the proposed Fence Lake Mine project area: one historic Acoma shrine still in use, a portion of the Zuni Salt Lake neutral zone, Cerro Prieto and its associated shrines, and seven trails. In addition, several rock cairns were located that may represent shrines, but their dates and functions are unknown. The Zuni Salt Lake is another recognized traditional cultural property, located more than 9 miles from the proposed mine permit area and approximately 3 1/2 miles from the railroad corridor.

Although many of the trails have more than one segment when viewed from the remote sensing data, few segments have been ground checked to determine their authenticity. A ground inspection is a requirement before a segment could be determined eligible for listing on the National Register of Historic Places. Other than the Acoma Trail, no other trail had a consistent alignment that could be ground-verified, although several trails have easily seen segments outside of the proposed railroad corridor. In some cases, railroad corridor crossings could be extrapolated from identified trail segments outside of the corridor right of way. The Acoma trail (wagon and foot paths) crosses through the proposed mine permit area as well as the railroad corridor. The Acoma trail was difficult to ground-verify, but segments were visible from the air and through analysis of the aerial photographs. The Acoma also identified the general localities that the trail traversed (Hart and Ferguson 1993). SRP and representatives of Zuni and Acoma continue to try to refine the location of trail segments and alignments.

Based on the submitted mine plan disturbance maps and plotting eligible sites against the proposed disturbance areas, 323 sites identified in the mine area and 57 sites identified in railroad corridor surveys may be directly impacted by currently proposed mining operations. Table 4-3 presents a breakdown of numbers of sites to be impacted during 5-year mining intervals as well as a list of the sites eligible to the NRHP that would be impacted.

Table 4-3

Mine Area: Numbers of sites in proposed disturbance areas.

Dist. Area (years)	Elig	Not Elig	More Info	Elig Pending	Total
1-5	9	7	0	0	*16
6-10	8	12	14	12	46
11-15	3	4	14	3	24
16-20	5	10	5	2	22
21-25	11	7	17	6	41
26-30	12	16	19	14	61
31-35	22	11	39	9	81
36-40	13	4	3	12	32
	83	71	111	58	323

NOTE: Boundaries of disturbance areas for years 6 - 40 are preliminary at this time, and may change in the future.

* (+57) railroad corridor and ancillary areas

Mine Area: Non-Disturbed Sites

Elig	Not Elig	More Info	Elig Pending	Total
58	49	80	26	213

Table 4-4

Archaeological sites on the
Fence Lake railroad corridor

	Elig	Not	More Info	Elig Pending	Total
NM Corr*	17	12	1	--	30
AZ Corr	19	7	1	--	27
					57

*Count includes two sites that are on the New Mexico corridor within the mine permit boundary. The two sites are counted in the New Mexico railroad corridor tally and includes two sites in ancillary areas (County Road A034 relocation and Hubbell Ranch Road bypass).

> NOTE: The counts for archaeological sites avoided by moving segments of the railroad corridor are not included.

The greatest number of sites would be impacted during the first 5 years of mining which includes construction of the railroad corridor and mining facilities, development of service and haulroads, and actual mining disturbances. Sites not impacted by mining and construction would be left undisturbed. Sites located within the mining and construction areas would be avoided whenever possible. If avoidance or other protective measures are not feasible or prudent, a data recovery plan for the mitigation of the sites would be prepared, in consultations with the appropriate tribes, Federal agencies, and SHPOs.

A Treatment Plan (Fletcher 1994), delineating the overall research design for treatment of those eligible archaeological sites that can not be avoided as called for by the PA, has been completed and accepted. The Treatment Plan includes the basic guidelines for the scientific data recovery, analysis, and report write-up, as well as monitoring plans. As each five-year disturbance area is identified, a specific data recovery-plan would be completed. Each data recovery plan would follow the guidelines set forth in the Treatment Plan and the PA. The first five-year plan, which has been submitted to the agencies, would include the construction of the mine facilities and associated construction activities and construction of the railroad. A specific data recovery plan for sites located in the Arizona Corridor has been submitted, reviewed by the appropriate agencies and Tribes and approved. The data recovery plan for the New Mexico portion of the transportation corridor and the first five-year disturbance area of the mine has been submitted and is under review. See Table 4-3 for a general breakdown of projected site disturbance based on the sequence of 5-year disturbances.

A burial Memorandum of Agreement (MOA) has been drafted and circulated for approval to comply with the Native American Grave Protection and Repatriation Act, and the New Mexico and Arizona State laws (N.M.S.A. Section 18-6-11.2; A.R.S. Sections 41-844 and 41-865) regarding unmarked burial sites. If the MOA is not executed burials will be treated consistent with appropriate Federal and State laws.

In addition to direct effects, any increase in access to currently inaccessible areas, or an increase in local population associated with the proposed mine, may result in more uncontrolled recreation. This could lead to an increase in intentional or inadvertent damage to cultural resources in the region. The environmental setting of sites visible from the mine permit area or the railroad corridor would also be degraded from the current, largely undeveloped character of the landscape.

Although intensive archaeological and ethnographic studies have been ongoing in the proposed project area for some time, it is not possible, because of environmental, technological, and human factors, to say that all the important prehistoric and historic resources have been located. Therefore, the potential exists for destroying unknown cultural resources. Procedures for the handling of discovery situations are discussed in the PA and are specifically presented in the data recovery plans. Additionally, procedures for handling cultural resource discovery situations are included as a standard condition of the mining permit and mining plan approval.

However, a majority of the important prehistoric and historic sites have been located, and they are representative of the range of resources to be found. Though care has been used in developing mitigation plans and associated research strategies, certain impacts to prehistoric and historic sites are unavoidable. Present treatment of prehistoric and historic resources allows for collection of part of the scientific data present at a given site. Conceivably, current methodologies, technologies, and priorities may overlook or deem unimportant some sites or data that in the future could be critical to the interpretation of past lifeways. Additionally, the selection of certain sites for further scrutiny in lieu of others could cause the loss of important resources without study.

Data recovery studies carried out in the proposed mine permit area in 1987 demonstrate that impacts on many of the types of sites in the area can be successfully mitigated through professional study (Hogan 1987). Although the eight sites studied were quite small, a "large" habitation site within the State lease area was defined as having only 4 to 10 rooms, and only 5 "hamlets" of up to 30 rooms were recorded within the State lease. Habitation sites of these sizes might require substantial field studies, but are not "exceptional" challenges such as would be presented by some of the very large primary sites having 100 to 600 rooms. It is anticipated that impacts to all archaeological sites associated with the proposed project are mitigatable. It is important to note that a significant portion of the archaeological record would be preserved by avoidance of many of the sites in the mine permit area.

Impacts to sites deemed significant for reasons other than their information potential may be more difficult to treat, particularly for any sites that might have significance for Native American communities. But treatment for the reduction of potential impacts is clearly a possibility. For example, the existing coal railroad into Coronado Generating Station crosses the trail from Zuni Pueblo to Zuni Heaven. By working with the Zunis, SRP was able to ensure that the railroad did not restrict access along the traditional trail. Similar treatment measures can also be employed on this project.

a. Traditional Cultural Properties, Potential Impacts, and Mitigative Alternatives

All of the tribes contacted expressed concerns about the impacts from mining on traditional cultural properties and potential burials in and around the proposed Fence Lake mine and railroad corridor. All of the tribes indicated they would prefer that the project not be approved and the properties remain unaffected. However, in the event that the proposed project does go forward, most of the tribes have offered their preferences for treatment alternatives. Additionally, several individual tribal members presented their thoughts on treatment. In some cases, the mitigative preferences were at odds with the preferences of other tribes and other recommendations did not appear to be realistic. The following is a discussion of the potential impacts that may occur to traditional cultural properties and suggested treatment alternatives. The section would provide a recommended course of mitigative action presenting both general and specific mitigation strategies designed to reduce impacts on the resource.

(1) Zuni Salt Lake

Direct Impacts

Hydrological Impacts - No Impacts to the hydrological regime of the Zuni Salt Lake are anticipated. Wells have been drilled specifically to monitor the status of the various ground water formations and the monitoring would be continued for the life of the mine. SRP would also be required to monitor the water level in the cinder cone at the Salt Lake and provide data to the regulatory authority for the life of the mine. (See chapter 4, section C-3).

Air Quality - Concerns were voiced about the potential impacts that might occur at the Zuni Salt Lake because of a reduction in ambient air quality due to the mining operation. The concerns center on the possibility that the salt could become contaminated with air-borne dust. Some short-term increase in fugitive dust would be associated with the construction of the mining facility and mining operations. However, monitoring and a fugitive dust suppression plan would be required under a mining permit. In addition, with the proposed change from an all-weather haul road to a railroad corridor, potential air quality impacts on the Lake would be greatly reduced. Finally, it is possible that public roads in the vicinity of the Lake would be subjected to higher use during the life-of-mine and there may be an associated increase of fugitive dust levels in the general area. Such impacts would, in all likelihood, be very minor. Air quality monitoring data would also be provided to MMD and OSM for the life-of-mine (see chapter 4, section C-1).

The Neutral Zone is an element of the Zuni Salt Lake. It was understood that no hostilities, hunting or other types of activities could occur within an area around the lake. The concept appears to have been a way to ensure that the Tribes could travel to the Zuni Salt Lake without harassment. This type of phenomenon does not lend itself to the concept of a property as defined in 36 CFR Part 60 and the National Register Guidelines. Among those interviewed on this issue in the ethnographic report prepared for the project, reclamation was recommended as a method to mitigate any impacts that may result from mining.

Other Impacts

Over the years, regional newspapers and other media stories have increased the public's awareness about the location and nature of the Lake and has undoubtedly lead to an increase in overall visitation. The Lake is accessible by public roads. It is possible that the development of the mine may contribute to the overall increase of visitation and traffic in the area of the Zuni Salt Lake. The Lake is located outside of the proposed permit area and the regulatory agencies that would be associated with the mine do not have direct jurisdiction over public roads.

Owing to the fact that the Lake is situated in a volcanic feature located below the level of the surrounding terrain, noise and visual intrusions on this resource are expected to be minimal.

The agencies anticipate that the best mitigation efforts to prevent these types of impacts include signs providing information and rules about the Salt Lake. An orientation and awareness program about the Salt Lake and other cultural and paleontological resources should also be implemented for both mine management and employees. This ongoing orientation and training program should include awareness training on sensitive Native American issues, reporting of archaeological discoveries, as well as avoidance and protection of sites.

In conclusion, the agencies anticipate that any impacts from the proposed mining operation to environmental resources at Zuni Salt Lake would be negligible in both the short and long term.

(2) Salt Pilgrimage Trails

Prior to the initiation of studies associated with the proposed Fence Lake project, the Native American tribes did not know the exact location of the trails, since few had been used within living memory. Despite this fact, the trails represent an important cultural tradition that the tribal groups wish to preserve. The effort to identify their location, initiated by BLM and SRP in conjunction with the tribes, has assisted the tribes in regaining a previously lost piece of their heritage. The located trail segments have been plotted using geographic positioning technology and this data is stored and available to the tribes. It is important to note that all of the trails have been impacted by modern land use (roads, powerlines and natural gas corridors, fences, etc.) and this has not affected their importance or significance to the Native American community.

A number of trail segments have been identified that appear to be associated with named trails. Consequently, all of the named trails have been determined eligible for listing on the National Register of Historic Places, but the eligibility of individual segments has not been determined pending further ground-truth identification.

Direct Impacts

In spite of intensive surface inspections, no evidence of trail segments has been identified within the railroad corridor. Further methods to identify trail segments, if undertaken, would include subsurface excavations, which would lead to destruction of some portion of a segment, or additional remote sensing techniques.

It is possible, based on the identification of trail segments on either side of the railroad corridor, to project the alignment of routes across the proposed railroad. Eight crossings are extrapolated for routes of seven trails: the Old Zuni and New Zuni, Navajo Salt Woman, Acoma, Wenoma, Kiatsutuma and Hopi Ceremonial trails. The Hopi Ceremonial trail has not been accurately identified on the ground and the Kiatsutuma trail was not used as a salt pilgrimage trail. The pilgrimage trails were used for both ceremonial and domestic collection of salt from the Zuni Salt Lake.

Although no ground-truthed segments would be impacted by construction of the railroad corridor, the projected trail alignments would be crossed by the railroad. The focus of the mitigation should ensure that the tribal groups would have the opportunity to use the pilgrimage routes in the future for salt collection purposes. It appears that the preservation of the trail routes is a paramount consideration. The proposed mitigation, therefore, would concentrate on preserving the integrity of the different routes by ensuring routes/passages through the railroad corridor on Federal or SRP lands to provide access to the Zuni Salt Lake. The following presents approaches to preserving the trails and facilitating access and utilization.

There are several measures that can be considered common to all of the routes. SRP would assure through a perpetual easement that the tribes would be allowed access to and across SRP-owned lands for the purposes of visiting their traditional cultural properties and performing associated ceremonies or activities. Use of the easement would entail that the tribes notify SRP in advance of their proposed use of a particular trail. Access would be restricted to mutually agreeable corridors. For Federal lands in the project area, the access is generally unrestricted. For other lands, State and private, access and utilization is not guaranteed. Individual agreements for access across these lands would need to be obtained by an individual tribe.

SRP has indicated a willingness to construct earth ramps where the projected trails are crossed by the railroad corridor. The ramps would be located on both sides of the railgrade and would facilitate crossing. Additionally, SRP has indicated that they would be sensitive to these areas and would conduct as little land disturbance as is possible during the construction of the railroad corridor. An archaeological monitor might be utilized during the construction of the railroad in the area of the projected trail crossings.

Other measures that have been presented include marking the trails in the area of the corridor, and the construction of access underpasses/culverts, and bridges. These and other options, if applicable, would be points of discussion between the regulatory authority(s), SRP, and the specific tribes.

The Acoma Salt Trail would also be directly impacted by construction of the mine facilities and coal extraction. Pieces of the trail, up to 6,300 linear feet, may be lost to mining planned for the southern portion of section 29, the northern portion of section 32 and the south-east corner of section 30 in T4N R16W. The trail also passes though the area planned for facilities development (sections 25 and 36) and then crosses the proposed railroad corridor in several places. Much of the trail is an historically used ranch road. The Acoma have indicated that they would like the trail and a two hundred foot buffer (one hundred feet on each side) to be preserved. The location of minable coal seams and the engineering constraints of the mine do not allow for this as an option. Wherever possible, it is proposed to leave the trail intact. In some areas where disturbance is anticipated it may be possible to preserve the trail by covering it with suitable material and then uncovering it upon completion of mining operations. In other areas portions of the trail would be destroyed. In these areas it may be possible to relocate and reestablish the trail after mining during the reclamation of the land. The whole of the identified Acoma trail is being plotted using geographic positioning technology so that an exact relocation is possible. However, there does not appear to be a fully satisfactory mitigative alterative short of prohibiting mining. Acoma Pueblo has indicated that religious ceremonies are not an appropriate mitigative measure for effects to the Acoma Trail. It is possible that religious ceremonies may be deemed appropriate for other trails proposed by other Tribal groups. Construction of the mine permit area and railroad corridor could uncover religious or cultural objects associated with the Acoma and other trails as well as actual trail segments. It may be prudent to employ a monitoring program to help to deal with this type of discovery. Monitoring teams could be comprised of archaeologists, mine personnel and representatives of an appropriate tribe.

Other Impacts

SRP, in its PAP, proposes to convert the railroad corridor to a permanent road as a postmining land use upon completion of mining. Under this scenario, the long-term impact of a permanent road on the projected salt trail crossings would be minor.

The presence of the railroad corridor would be a visual impact on the trails, and in the case of the Acoma Trail both the railroad corridor and the mine permit area would impact it. As previously noted, this would not be the first intrusion to these resources. Noise impacts from the mining and railroad operations would be limited to those times when the trail(s) are utilized, and, therefore, would be minor over the short term and negligible over the long term.

(3) Shrines

Several sites have been identified as possibly containing shrines as a feature of the site. A White Rock is described by the Acoma as a marker defining entry to the sacred area of the Zuni Salt Lake. The White Rock would not be directly impacted by mining operations. Indirect impacts may result from increased noise, visual intrusions, and increased visitation.

Acoma Pueblo has recommended that the White Rock be protected by a 40-acre exclusion zone. Since it is located outside the area proposed for mining, such a large buffer zone is not feasible, but other protective measures are available. SRP, as the land owner, would guarantee access to the rock for ceremonial purposes. Other potential treatment measures, including fencing or physically relocating the shrine are not considered viable options.

Visitation would be somewhat restricted by the general mine access limitations. The importance of the White Rock to Acoma culture could be included in the employee cultural awareness training associated with mine employees orientation. Also, a survey of the White Rock could be included in regularly scheduled mine inspections to detect changes in the rock, primarily from vandalism, and the surrounding environment that might cause impacts to the shrine. If changes are identified, additional protective measures may be warranted.

Impacts to the White Rock from the proposed Fence Lake project would be minor over the short term and negligible over the long term.

(4) Cerro Prieto

This volcanic feature is a prominent landmark in the proposed mine permit area and is considered by several tribes to be important in their cultural histories. A portion of Cerro Prieto has been determined eligible for nomination to the NRHP primarily for its role in Navajo history as a collection area for ceremonial materials and as a place where blessings and offerings are made. SRP is proposing to obtain gravel for construction purposes from the flanks of the Cerro Prieto. The proposed gravel source is located within the boundaries defining the limits of this cultural property. Several of the tribes feel that this activity would compromise the area's integrity. If approved by the regulatory agencies, removal and appropriate surface reclamation are anticipated to have a major impact over the short term and moderate long term affect.

(5) Treatment of Human Remains/Burials

The treatment of human remains is currently dependent upon land ownership status. Where Federal and tribal lands are involved and the human remains are Native American, the Native American Graves Protection and Repatriation Act applies. On private or State Trust lands in New Mexico and Arizona, the appropriate burial statute would apply. Transcending land status, the National Historic Preservation Act also takes into consideration human remains that are more than 50 years old. Under SMCRA and the New Mexico Surface Coal Mining Program's regulations, any burials (prehistoric/historic) that are located in the project area are protected by avoidance (100-foot buffer zone), but relocation is an option that is coordinated through the appropriate regulatory authority.

A Memorandum of Agreement (MOA) among the Federal and State agencies (Arizona and New Mexico) and Native American Tribes has been developed and is currently being circulated for review. It is the agencies intent to finalize this MOA prior to commencement of the land disturbing activities associated with the proposed mine. However, in accordance with the archaeological PA and prevailing State and Federal regulations pertaining to burials, if the MOA is not executed, disposition of human remains would be completed on a case-by-case basis according to the applicable statutes.

Based on archaeological inventory, excavation and informant interviews, only one prehistoric burial has been located. The burial was found while testing a site for eligibility in the Arizona section of the railroad corridor. Overall, it is anticipated that the number of burials likely to be encountered in the project area would be relatively low and, based on the archaeological data, most, if not all, of the burials in the area would be Anasazi.

The proposed Burial MOA sets forth procedures for the relocation of intentionally excavated human remains associated with archaeological sites and unanticipated discoveries. The parties to the MOA recognize that the living Puebloan groups are descendants of the Anasazi. It is also possible that later historic burials affiliated with the Navajo or Euro- and African-Americans could also be identified.

One important criterion shared by the Native Americans is that the reburials would take place in relatively close proximity to the original grave sites. The tribes appear to be in agreement with the need for a central burial plot located on or near the mine permit area, but are concerned about long-term protection of the cemetery after mining is complete. SRP has agreed to provide a cemetery site for reburial, which is located on private land on the east side of Cerro Prieto. Preliminary research has indicated that New Mexico State law provides for a greater level of protection for a cemetery located on private land than does Federal law on land under BLM jurisdiction. As with the White Rock, the cemetery plot could be inspected for the life-of-mine. SRP has indicated that they also have a site selected in Arizona if transportation of burials across State lines is not prohibited. It is expected that SRP would bear reasonable costs associated with the excavation and relocation of human remains and associated funerary objects.

Another alternative for reburial would be to relocate the human remains and associated funerary objects to the bottom of an open mining pit, at such a depth as to be unaccessible to vandals in the future. This alternative would entail restriction of reburials to a periodic schedule (yearly, semi-annually, after an archaeological field season, etc.) causing burials to be curated for a longer period of time than envisioned by the burial MOA. Under any of the alternatives human remains would be treated in a sensitive manner.

Finally, burials associated with sites located on the railroad corridor could be reburied under the railbed before its construction. Since the corridor would be permanent, the burials would be protected for all time.

Impacts from the proposed Fence Lake project on human remains/burials are expected to be moderate over the short and long term, given that appropriate treatment measures would be employed.

b. Summary and Conclusions

Extensive analysis of the hydrological and air quality consequences of mining have indicated that the proposed operations would have negligible short- and long-term impacts on the Zuni Salt Lake, a traditional cultural property (see air quality and hydrology, chapter 4). SRP would be required to monitor the hydrologic regime and provide data on a regular basis to the regulatory authority.

Acoma's shrine, the White Rock, would be protected from all mining operations.

If the proposed gravel removal from Cerro Prieto were approved, the activity would have a major short-term and moderate long-term affect on the cultural property.

With the exception of the Acoma Trail, none of the other trails would be directly impacted by the mining operations or the construction of the railroad corridor. However, projected crossings areas would be impacted. Several mitigative scenarios have been proposed to provide protection to the trails and reduce mining related impacts on them.

Human remains, if located, would be recovered, treated, and relocated in accordance with an executed MOA or applicable State and Federal laws.

Archaeological sites that are determined eligible to the NRHP would be mitigated in compliance with the approved PA, overall treatment plan, and specific data-recovery plans.

9. Transportation

An analysis of impacts to transportation resources was not included in the BLM draft EIS (May 1990). However, now that SRP has submitted a proposed mine plan, the agencies have decided to include a separate analysis of impacts to transportation resources in this supplemental EIS since the PAP proposes a railroad for the transportation corridor that would operate for the life-of-mine and then be converted to a permanent road. Both the railroad phase and the permanent road phase would involve some local road crossings.

Several roads would be used to access the Fence Lake minesite. The eastern approach from State Highway 117, which would provide access from Cibola County, would be via the Hubbell Road (County Road A034). The Hubbell Road (two-lane earthen) would be rerouted westward from a point beginning in Section 33, T4N, R16W and a new section of road would be constructed to bypass the Central Ridge Extension mining area. The new section of rerouted road would reconnect with existing A012/A034 near the east side of the proposed railroad loop. Although it would cross the mine permit area, the Hubbell Road (A012/A034) would remain open to the public as a county road during surface mining and reclamation operations. The south-southeastern approach to the mine from U.S. Highway 60 near Quemado would utilize the existing Catron County Roads A028 and A029 (two-lane gravel). Apache County Road 6040 (two-lane gravel) would be used to access the minesite from St. Johns, Arizona (See Figure 1).

Primary haul roads would be constructed throughout the mine permit area to connect each mining area to the coal stockpile. These roads would be up to 65 feet in width, or 2.5 times the width of the widest truck to be used. Some sections of these roads would be mined-through as the pits advance. After completion of operations at the Fence Lake mine, all roads that are not utilized in the postmining land use or re-established as permanent roads would be reclaimed.

A 44-mile railroad would be constructed for the purpose of transporting coal from the Fence Lake mine to the Coronado Generating Station. (See Figures 1 and 2). The right-of-way for the railroad would vary from 150 to 250 feet in width and, in addition to the railroad track, would include a parallel access road that would be used for railroad maintenance and a parallel powerline.

Construction of the railroad corridor would necessitate the relocation of two sections of Catron County Road A001 near the Arizona/New Mexico state line in order to facilitate operation of the railroad. The sections are approximately 1 mile and 3/4 mile in length, and they would be relocated generally to the south of the existing route at a distance of less than 200 feet. The railroad corridor would also involve the construction of a crossing, with appropriate warning signs, at New Mexico State Highway 601.

The railroad corridor would cross the hydrologic system formed by the convergence of Carrizo Wash, Largo Creek and Nations Draw at 8 points over its 44-mile length. The proposed crossing structures would be constructed of earthen fill and a series of large culverts designed to accommodate, at minimum, a 25-year flood event. Crossing structures would be designed to prevent damage to the stream bed and downstream environment and must meet the requirements of SMCRA.

The use of a railroad corridor should be environmentally preferable to the use of a haulroad for trucks, which was one of the options considered in the BLM EIS. The frequency of the coal train schedule is estimated to be one round trip per day. Even with the increase in coal tonnage mined that is projected to begin in year-29 of the project, it is estimated that only one-unit train per day would be needed to haul coal to the generating station. The rail-haul system would eliminate the constant traffic on the haul road, thus reducing the visual, noise and air quality impacts (dust, diesel fumes) from the trucks. It would also lessen the possibility of coal spills and fuel leakages.

a. Impacts of Increased Traffic

Since mine employees are expected to be drawn from throughout the region, it is doubtful that any substantial increase in the population of the towns surrounding the proposed Fence Lake mine would occur. However, the current traffic patterns between surrounding populated areas and the proposed minesite would experience an increase. Traffic associated with the Fence Lake mine could add as many as 270 vehicle trips daily on the various routes that could be used to access the facility area of the mine. SRP anticipates that Catron County Road A029, an access road from Quemado to the proposed mine, would require upgrading: a new application of surface materials, at the minimum; probably a minor width expansion; and some alignment adjustments. The PAP also indicates that other ranch roads, as yet undesignated within the proposed mining area, would be improved as the project progresses.

With these projected increases in traffic volume and road modifications, impacts to roads in the vicinity of the proposed Fence Lake mine would be moderate with the potential to become major over the short term. Long-term impacts to the existing road network would be minor.

b. Impacts of Coal-Train Traffic

Coal-train traffic in the Fence Lake area could lead to delays, some congestion, and increased accident hazards between the mine facilities area and the Coronado Generating Station.

Delays would occur near at-grade road crossings. Expected train use would normally be one round-trip daily. Traffic delays could create an inconvenience to local residents and may impact the travel of emergency vehicles.

Grazing of animals may be slightly impacted initially, as the proposed route of the railroad is currently through open range grazing areas. However, once in place, the passing of daily trains would become routine and should pose no problem with the animals.

The impact of the railroad corridor on public safety and automobile traffic flows near at-grade railroad/road crossings would be minor over the short-term. Over the long-term, the conversion of the railroad to a permanent road and the addition of that road to the existing road network would have a minor impact on local and regional transportation resources.

10. Relationship Between Short-term Uses of the Human Environment and the Maintenance and Enhancement of Long-term Productivity

Mining and coal haulage would increase PM_{10} concentrations (airborne dust particles less than ten microns in diameter) in and around the minesite area and, to a lesser extent, along the railroad corridor. Visibility would also be reduced in and around the minesite area owing to increased PM_{10} levels, but this reduction would be short-term and minor to moderate. Degradation of air quality is expected to be minor and short-term. Air quality would return to previous levels when mining and reclamation are completed.

Approximately 81.3 million tons of coal would be removed from the mine permit area over a 38-year mining period. This would constitute a permanent loss for future use. Mining would permanently alter the present geology in the mine area to a depth ranging from approximately 0 to 200 feet. Topography in the area would also be altered permanently.

Construction and mining would progressively disturb soils on approximately 7,885 acres in the mine permit area and another 547 acres along the railroad corridor. For the most part, these impacts would be short-term until reclamation is complete. A minor amount of permanent soil loss would occur. Over the long term, soil productivity should return to pre-mine conditions, and perhaps better than present levels.

Impacts to surface waters are expected to be negligible and short term. Changes to surface-water quantity would include decreased runoff potential due to retention ponds and infiltration into mine spoils. Total suspended solids would be expected to increase slightly during reclamation, due to the erosion potential of the spoils. These impacts would be negligible and short-term.

Local recharge of alluvial groundwater would be moderately affected when pits are opened and discharge into the pit would occur. This would be a short term impact, as local recharge would return to pre-mine levels after reclamation. Groundwater quality is expected to remain very close to pre-mine levels throughout mining and reclamation.

Approximately 7,885 acres of vegetation would be disturbed in the mine permit area and another 547 acres would be disturbed along the railroad corridor. For the most part, impacts to vegetation would be short-term until reclamation. The impact of long-term losses of dense Pinyon-Juniper Woodland side-slope habitat would be minor to moderate for local mammalian populations. Any disturbance to golden eagle or ferruginous hawk nest sites, or disturbance of grassland prey bases near nest sites, would have the potential to become a localized, short-term, minor impact.

Livestock grazing would be restricted during mining, and about 3,970 acres of grazing forage would be disturbed. Impacts to grazing would be short-term and minor to moderate, and would return to pre-mine levels and probably result in better forage conditions after reclamation.

Operation of the mine would provide between 74 and 134 jobs in the project area. Construction of the railroad corridor would employ about 100 people, and operation of the railroad could provide approximately 10 jobs. Property taxes paid by the lessee to the affected counties would be major beneficial impacts. Royalty payments would also be substantial. Some impacts could also result from excessive demand for local public services and housing from influxes of construction workers in the project vicinity, but these impacts would be relatively minor and short-term.

Mitigative data-recovery studies at threatened cultural and paleontological resources sites would represent a short-term use of the information potential of those sites, and would preempt longer term potential to recover more information as study methods and techniques improve.

11. Irreversible and Irretrievable Commitment of Resources

An irreversible or irretrievable commitment of resources would occur when various resources are consumed, committed, or lost during the project life. A resource is committed irreversibly when the current and/or potential productivity of that resource is lost and, once lost, can never be regained. A resource is committed irretrievably when the current and/or potential productivity of that resource is lost for the life of the mine, but can be regained at some future time.

Long-term impacts to air quality and visibility on and in the vicinity of the minesite would be negligible.

Mining would irreversibly change the quality of approximately 7,885 acres of soil material at the minesite. Some soil would be irretrievably lost during mining owing to erosion. Construction of the railroad and conversion of it to a permanent road at the end of the life of the mine would irreversibly change the quality of approximately 900 acres of soil material along the railroad corridor.

Approximately 81.3 million tons of coal would be mined and consumed over the project life. The loss of this coal resource would be irreversible and constitutes the major irreversible commitment of resources of the proposed project.

Minor changes in surface and groundwater quality would constitute a long-term, irretrievable impact. Any reductions in downstream flow would constitute a short-term, irretrievable impact.

The forage that disturbed lands could have produced would be irretrievably lost during mining and reclamation activities. After reclamation, any reduction from pre-mining conditions in vegetative cover and wildlife habitat would constitute a long-term, irretrievable impact. Wildlife mortality would constitute an irreversible impact.

The commitment of cultural or paleontological resources to mitigation studies constitutes an irreversible and irretrievable use of those resources. Any information not recovered by current study methods and approaches, and any heritage values dependent upon in-place preservation, would be lost if resources are destroyed by the proposed mining.

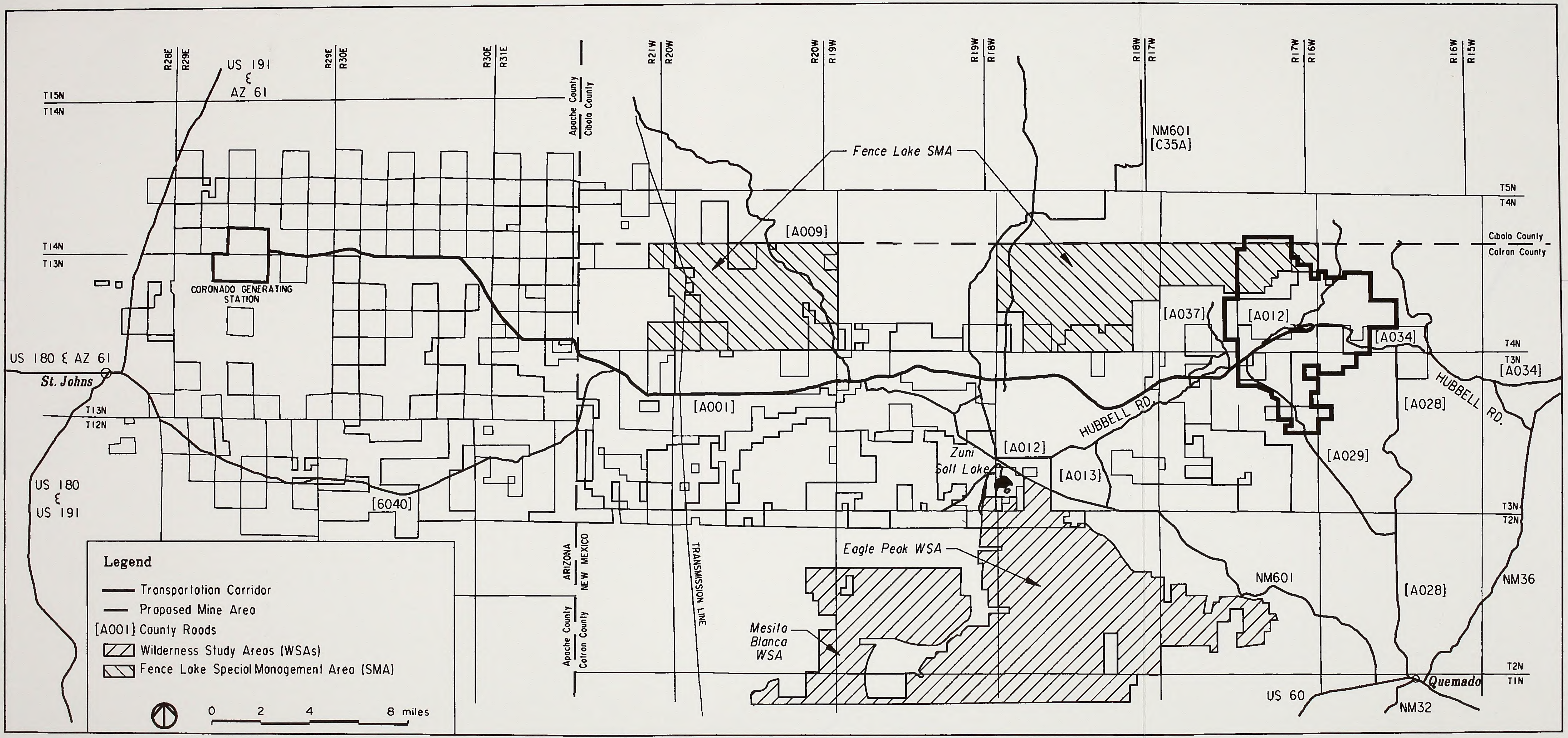
Materials used in construction or manufacture of mine or railroad facilities would be irretrievably committed while in use. Many of these materials could be salvaged when the project facilities were abandoned.

D. LIFE-OF-MINE MINING PLAN AND PERMIT APPLICATION PACKAGE-DISAPPROVAL ALTERNATIVE (ALTERNATIVE 2)

The agencies conclude that disapproval of the proposed life-of-mine mining plan to recover Federal coal resources and the PAP for a Federal permit to conduct surface coal mining and reclamation operations in Arizona (Alternative 2) would result in negligible impacts to most of the environmental resources in the affected environment. Alternative 2 would have a negligible impact on air quality, topography, geology, paleontology, soils, vegetation, wildlife, land use and recreation, visual resources, noise, and transportation for both the long- and short-term. Any impacts that did occur would result from the collection of base line environmental information that has already taken place in the proposed Fence Lake Project area.

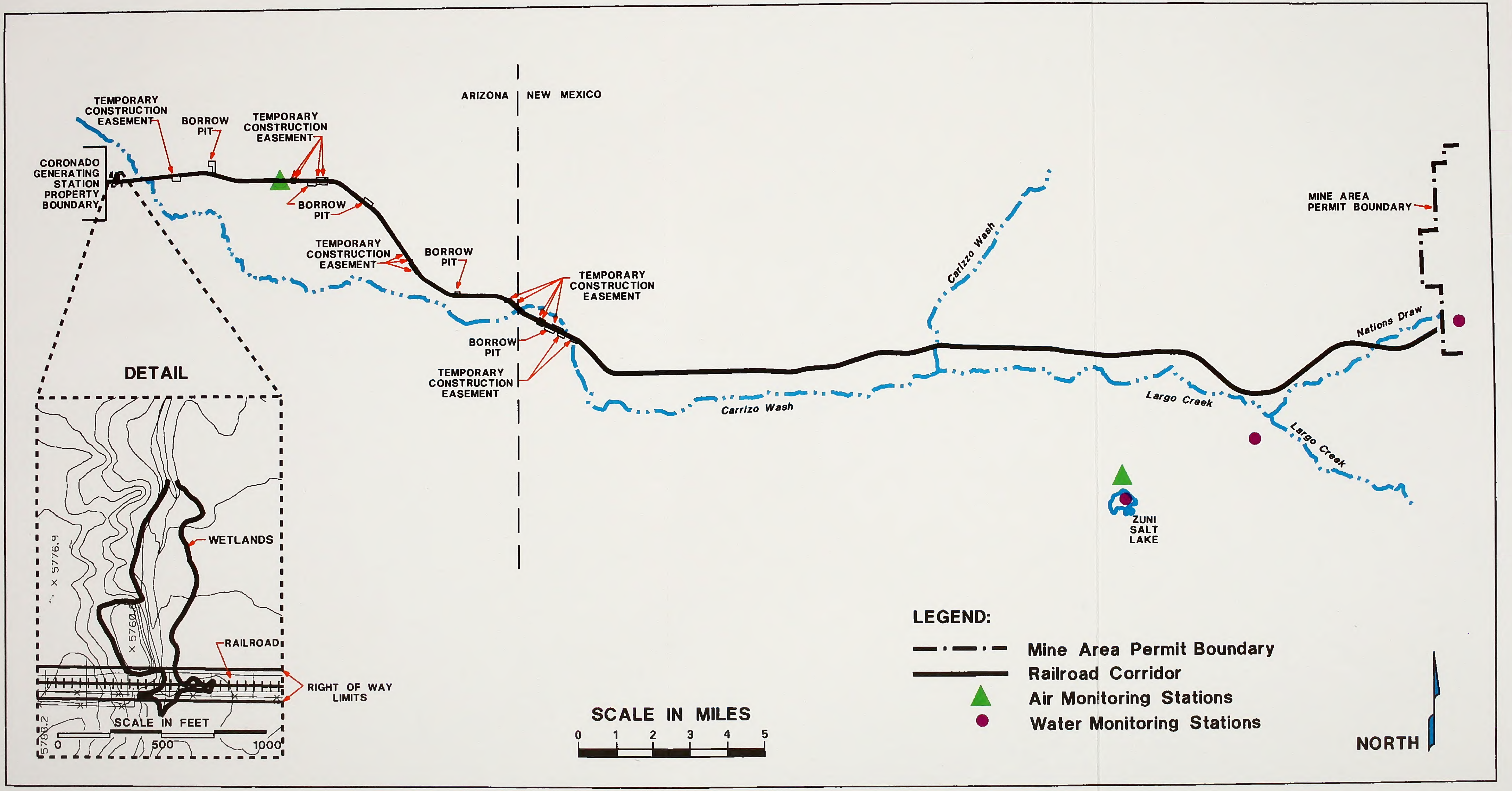
Alternative 2 would also result in short-term negligible to minor impacts to identified/tested archeological sites in the project area owing to the cultural resource inventory conducted prior to the submittal of the permit application package. This would also entail the potential for short-term negligible to minor impacts to sites from vandalism. There would be negligible short-term impacts to salt trails, burial sites, and undiscovered sites. All long term impacts to cultural resources would be negligible.

The socioeconomic environment is subject to a variety of influences, but only some of these influences are known or are reasonably foreseeable at any point in time. Accordingly, the agencies conclude that disapproval of the proposed Fence Lake Project would cause major short- and long-term impacts to socioeconomic resources resulting from the loss of jobs, personal income, business activity, and tax revenue expected to be generated by the development of the proposed mine and railroad corridor. Disapproval would mean the loss of approximately 160 temporary construction job opportunities, with an associated payroll of $1.5 million, and the loss of permanent employment over the 38-year production life of the mine with an estimated payroll of $4.7 million per year. This would have a major short- and long-term impact to the econmomic base of Catron County, where the proposed Fence Lake mine was expected to become the largest single source of wage and salary income in the County. Impacts to Cibola and Apache Counties would be minor to moderate in the short term and negligible to minor in the long term depending on the potential employment opportunities that would be lost with disapproval of the proposed project. However, there would be a minor beneficial impact over the short term to community and social services within the project area that would not experience an increased level of demand placed upon them with project disapproval.



FENCE LAKE MINE TRANSPORTATION CORRIDOR

EXISTING ROADS FIGURE 1



FENCE LAKE MINE

RAILROAD CORRIDOR
FIGURE 2

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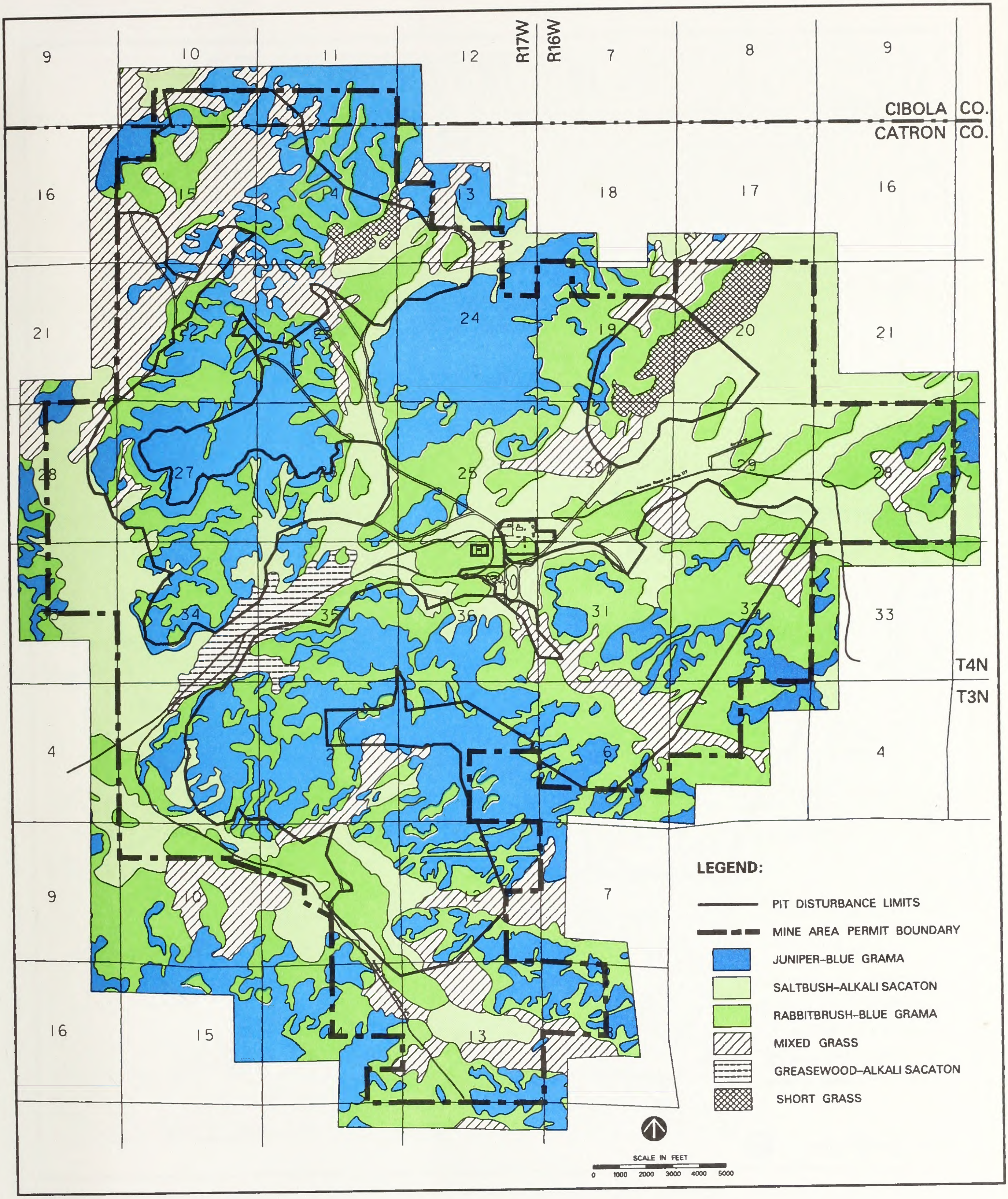
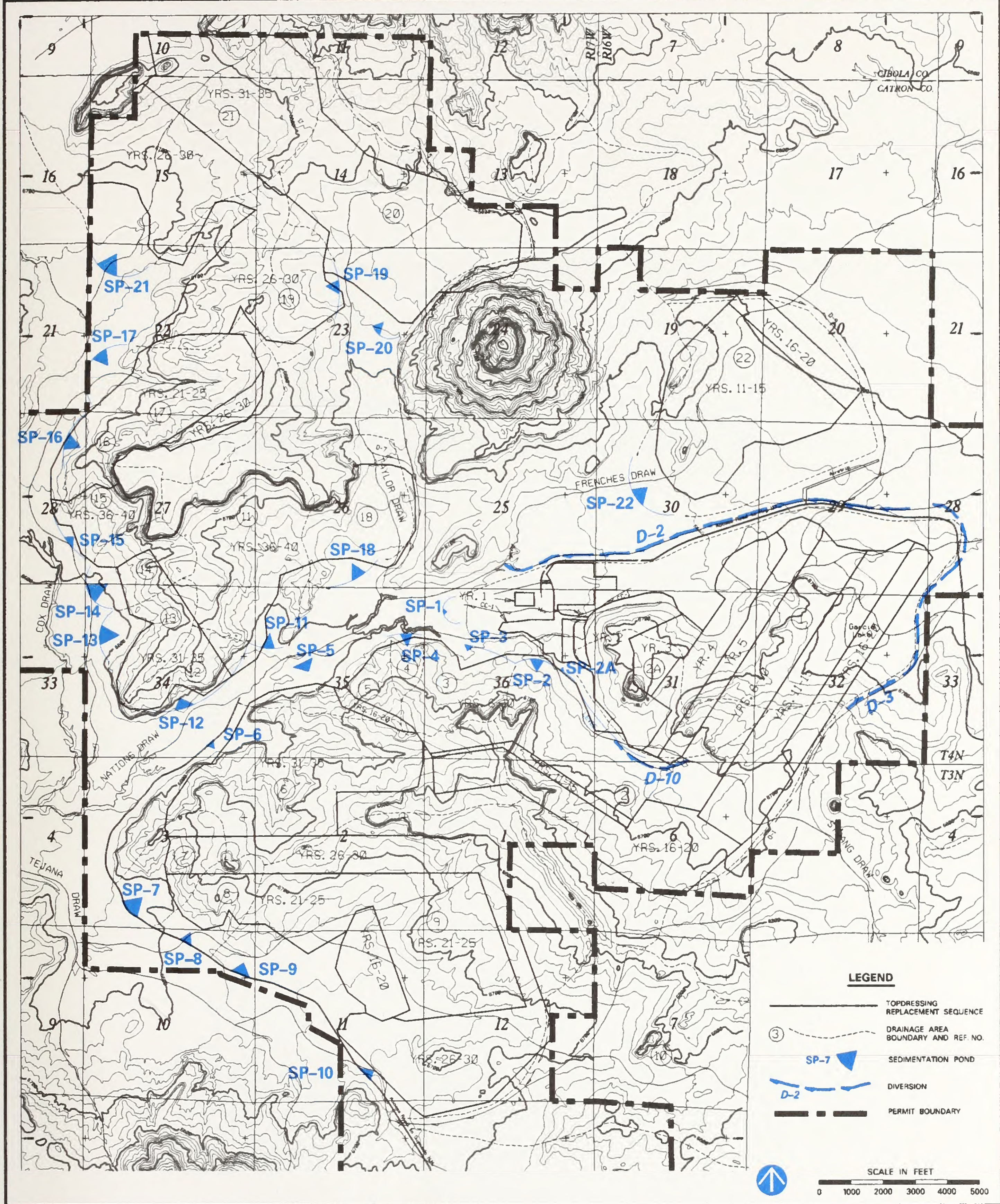


FENCE LAKE MINE

VEGETATION DISTURBANCE
FIGURE 3



FENCE LAKE MINE

LIFE OF MINE WATER CONTROL

Figure 4

CHAPTER 5

CONSULTATION AND COORDINATION, PUBLIC PARTICIPATION, AND REVIEW

CHAPTER 5

CONSULTATION AND COORDINATION, PUBLIC PARTICIPATION, AND REVIEW

A. CONSULTATION AND COORDINATION WITH AGENCIES

In the course of processing SRP's mining plan and PAP for its proposed Fence Lake mine, OSM consulted/coordinated with a variety of agencies:

The New Mexico Mining and Minerals Division (MMD) was contacted to ensure its participation as a cooperating agency in this supplemental EIS. It provided consultation regarding the review and evaluation of SRP's permit application as well as environmental and mining matters covered in the EIS. In conjunction with the review of the permit application, MMD prepared preliminary findings, supporting documentation, and the cumulative hydrologic impact assessment evaluating potential environmental impacts of the project. As a cooperating agency, MMD also assisted in project coordination and provided technical assistance on cultural resources, hydrology, engineering, and biological resources.

The Socorro Area Office of the Bureau of Land Management (BLM) was contacted to ensure its participation as a cooperating agency for this supplemental EIS. As a cooperating agency, the office assisted in project coordination and provided technical assistance on cultural resources as well as consultation on geology, hydrology and other environmental matters.

The Farmington Area Office of the BLM was contacted and provided consultation on the mining plan for resource recovery and protection plan purposes.

The Phoenix Area Office of the BLM was contacted and provided consultation on cultural resources, surface leasing and right-of-way matters.

The Albuquerque District Office of the BLM was contacted and provided consultation on cooperating agency status under the provisions of the National Environmental Policy Act (NEPA).

The Dallas Office for Region VI of the Environmental Protection Agency was contacted to ensure its participation as a cooperating agency in this supplemental EIS. In addition to acting in a review capacity during the preparation of this supplemental EIS, the office provided consultation on a National Pollutant Discharge Elimination System (NPDES) permit for wastewater discharge under Section 402 of the Clean Water Act.

The Albuquerque District Office of the U. S. Army Corps of Engineers (COE) was contacted and provided consultation on wetland and riparian areas and on a nation-wide permit under Section 404 of the Clean Water Act.

The Advisory Council on Historic Preservation was contacted and provided consultation during the preparation of the programmatic agreement on cultural resources.

The State Historic Preservation Officer for Arizona was contacted and provided consultation during the preparation of the programmatic agreement on cultural resources.

The State Historic Preservation Officer for New Mexico was contacted and provided consultation during the preparation of the programmatic agreement on cultural resources.

The Arizona State Land Office was contacted and provided consultation during the preparation of the programmatic agreement on cultural resources.

The New Mexico State Land Office was contacted and provided consultation during the preparation of the programmatic agreement on cultural resources.

The Office of the Arizona State Mine Inspector was contacted and provided consultation on Arizona's Mined Land Reclamation Act of 1994.

The Arizona Game and Fish Department was contacted and provided consultation on wildlife matters in the State of Arizona.

The Albuquerque and Phoenix District Offices of the U. S. Fish and Wildlife Service were contacted and provided Federal consultation on wildlife matters for the total project area.

The Albuquerque Area Office of the Bureau of Indian Affairs (BIA) was contacted and provided consultation on Federal policy regarding matters of interest to the Acoma, Laguna, Mescalero Apache, Ramah Navajo, and Zuni tribes.

The Navajo Area Office of the BIA was contacted and provided consultation on Federal policy regarding matters of interest to the Navajo Nation.

The Phoenix Area Office of the BIA was contacted and provided consultation on Federal policy regarding matters of interest to the Hopi Tribe.

B. CONSULTATION AND COORDINATION WITH INDIAN TRIBES

In the course of processing SRP's mining plan and permit application for its proposed Fence Lake mine, the agencies consulted/coordinated with a variety of Indian Tribes:

The Pueblo of Acoma was contacted and provided consultation on cultural resources, hydrology and other issues of particular interest to the Acoma.

The Hopi Tribe was contacted and provided consultation on cultural resources, hydrology and other issues of particular interest to the Hopi.

The Pueblo of Laguna was contacted and provided consultation on cultural resources, hydrology and other issues of particular interest to the Laguna.

The Ramah Navajo Chapter was contacted and provided consultation on cultural resources, hydrology and other issues of particular interest to the Ramah Navajo.

The Pueblo of Zuni was contacted and provided consultation on cultural resources, hydrology and other issues of particular interest to Zuni.

The Navajo Nation and Mescalero Apache Tribe were offered the opportunity to provide consultation on cultural and environmental issues that are of particular interest to them.

C. PUBLIC PARTICIPATION

1. Scoping

A formal period for submittal of written comments regarding the scope of the supplemental EIS analysis occurred from July 25 through September 15, 1994. OSM published a notice of intent to prepare a supplemental EIS on the Fence Lake mine proposal, including a request for public participation in determining the scope of the issues to be addressed in the supplemental EIS, in the July 25, 1994, Federal Register (59 F.R. 37777). Twelve comment letters on the scope of the supplemental EIS analysis were received.

During the week beginning August 15, 1994, OSM held public meetings in five communities that are situated around the proposed project area to obtain public input concerning the proposed mine in general and any significant issues in particular that the public felt a supplemental EIS on the proposed mine should address. The meetings were held in the following locations:

- August 15, 1994: Quemado High School, Quemado, New Mexico
- August 16, 1994: St. Johns 4-H Community Center, St. Johns, Arizona
- August 17, 1994: Best Western Gallup Inn, Gallup, New Mexico
- August 18, 1994: City Council Chambers at City Hall, Grants, New Mexico
- August 19, 1994: Best Western Fred Harvey Hotel, Albuquerque, New Mexico

A Notice of Public Meetings was mailed on August 2, 1994, to over one-thousand individuals and organizations that had expressed interest in the proposed project. The notice contained a brief description of the project, announced the schedule of public meetings, and invited the public to submit written comments and to participate in the public meetings. BLM-Socorro Resource Area personnel also posted the notice in public places near the project area.

Individual letters soliciting public participation and announcing the schedule of public meetings were also sent to the following entities:

- The Pueblo of Acoma
- The Hopi Tribe
- The Mescalero Apache Tribe
- The Navajo Nation
- The Pueblo of Laguna
- The Ramah Navajo Chapter
- The Pueblo of Zuni
- The Council of Energy Resource Tribes
- The Board of County Commissioners, Catron County, New Mexico
- The Board of County Commissioners, Cibola County, New Mexico
- The Board of Supervisors, Apache County, Arizona

Four local-area public radio stations in New Mexico were contacted, Notices of Public Meetings were sent via FAX to each of the stations, and all of the stations indicated that they would broadcast announcements of the public meetings. These radio stations were KABR in Magdalena, KSHI in Zuni, KTDB in Pinehill, and KANW in Albuquerque. KABR and KTDB are bilingual stations that broadcast in Navajo and English. KSHI is a bilingual station that broadcasts in Zuni and English.

Notices of Public Meetings were also published by OSM in six area newspapers. Notices appeared in the Courier (Hatch, New Mexico) on August 4 and August 11, 1994; the Apache County Observer (St. Johns, Arizona) on August 4 and August 11, 1994; the Defensor Chieftain (Socorro, New Mexico) on August 6 and August 13, 1994; the Navajo-Hopi Observer (Flagstaff, Arizona) on August 10, 1994; the Gallup Independent (Gallup, New Mexico) on August 13, 1994; and the Albuquerque Journal (Albuquerque, New Mexico) on August 14, 1994.

Included in each of these published newspaper notices was a statement asking "Any person who needs to have English translated at a scoping meeting, or any person with a disability who is in need of a reader, amplifier, qualified sign language interpreter, or any other form of auxiliary aid or service to participate in a scoping meeting..." to please contact an OSM representative at a designated telephone number. No requests for translation or any other auxiliary aid or service were made to OSM prior to the start any of the scheduled public meetings.

The Quemado meeting was attended by 24 people; St. Johns, 18; Gallup, 18; Grants, 14; and Albuquerque, 19. A three-page background handout, including a map of the proposed project area, was made available at each meeting. Representatives from OSM gave presentations about the proposed project at each of the meetings, answered questions about the NEPA process, and collected public comments. Public comments were accepted both in writing and by spoken statement, which OSM tape recorded and later transcribed for the public record. Numerous impact topics regarding the applicant's proposal were identified during these scoping activities. Many of these topics were evaluated as part of the impact analysis of the supplemental EIS

(Chapter 4). Those topics not formally addressed are discussed in section D of this chapter along with OSM's rationale for not including them in the analysis.

2. Draft Supplemental EIS

The draft supplemental EIS was published on April 28, 1995 and distributed to approximately 825 individuals and organizations that had expressed an interest in the project. A notice of availability of the draft supplemental EIS and announcement of related public meetings was published in the Federal Register (May 5, 1995). Notices of Public Meetings to receive comments on the draft supplemental EIS were also published by OSM in six area newspapers. Notices appeared in the Navajo-Hopi Observer (Flagstaff, Arizona) on May 17 and May 24, 1995; the Apache County Observer (St. Johns, Arizona) on May 18 and May 25, 1995; the Courier (Hatch, New Mexico) on May 18 and May 25, 1995; the Gallup Independent (Gallup, New Mexico) on May 20 and May 27, 1995; the Defensor Chieftain (Socorro, New Mexico) on May 20 and May 27, 1995; the Albuquerque Journal (Albuquerque, New Mexico) on May 21 and May 28, 1995; and the Navajo Times (Window Rock, Arizona) on May 25, 1995. OSM also announced in each of these public notices that translation service would be provided upon request and, even though no requests for translation were received, OSM arranged for a Navajo translator to be present at the public meetings in Gallup, Grants, and Albuquerque, New Mexico.

OSM also contacted six local-area public radio stations in New Mexico and Arizona, sent Notices of Public Meetings via FAX to each of the stations, and each of the stations indicated that they would broadcast announcements of the public meetings as a public service. These six radio stations were KANW and KUNM in Albuquerque, New Mexico; KABR in Alamo, New Mexico; KTDB in Pinehill, New Mexico; KSHI in Zuni, New Mexico; and KTNN in Window Rock, Arizona. KABR, KTDB, and KTNN are bilingual stations that broadcast in Navajo and English. KSHI is a bilingual station that broadcasts in Zuni and English.

Letters of invitation and printed announcements about the public comment meetings were sent to 1) the Board of County Commissioners in Cibola County, New Mexico; 2) the Board of County Commissioners in Catron County, New Mexico; 3) the Board of Supervisors in Apache County, Arizona; 4) the Hopi Tribe; 5) the Mescalero Apache Tribe; 6) the Navajo Nation; 7) the Pueblo of Acoma; 8) the Pueblo of Laguna; 9) the Ramah Navajo Chapter; 10) the Pueblo of Zuni; 11) the Council of Energy Resource Tribes; 12) the Bureau of Indian Affairs (BIA) - Navajo Area Office; 13) the BIA - Hopi Area Office; 14) the BIA - Albuquerque Area Office; 15) the Advisory Council on Historic Preservation; 16) the Arizona State Historic Preservation Officer; and 17) the New Mexico State Historic Preservation Officer. In addition, sets of printed announcements about the public meetings were mailed to: 1) the City Hall in Grants, New Mexico; 2) the Pueblo Indian Cultural Center in Albuquerque, New Mexico; 3) Catron County School District No. 2 in Quemado, New Mexico; and 4) the St. Johns 4-H Community Center in St. Johns, Arizona.

During the week beginning May 30, 1995, OSM held public meetings in the same five communities where the scoping meetings had been held in order to receive public comments on the draft supplemental EIS. OSM also arranged for a representative from a stenographic service to be present at each of the five meetings to compile an official record of public comments. The public meetings were held as follows:

- 7 p.m., May 30, 1995: Quemado High School, Quemado, New Mexico
- 7 p.m., May 31, 1995: St. Johns 4-H Community Center, St. Johns, Arizona
- 7 p.m., June 1, 1995: Best Western Gallup Inn, Gallup, New Mexico
- 7 p.m., June 2, 1995: City Council Chambers at City Hall, Grants, New Mexico
- 10 a.m., June 3, 1995: Pueblo Indian Cultural Center, Albuquerque, New Mexico

Representatives from OSM gave a brief presentation at each of the meetings and then took comments from the public. Total attendance at the five public comment meetings, based on meeting sign-up sheets, amounted to 45 persons.

3. General

The agencies took the actions described above under "Scoping" and "Draft Supplemental EIS" to encourage greater public participation in the supplemental EIS process in accordance with NEPA requirements for public involvement and the President's Executive Order 12898 of February 11, 1994 concerning Federal actions to address environmental justice in minority populations and low-income populations. The public involvement process has been conducted in such a manner so as to ensure that no persons or populations are excluded from participation in, denied the benefits of, or subjected to discrimination under the process because of their race, color, or national origin.

D. PUBLIC ISSUES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

- Need for a Non-Use Value Study - Members of the public suggested that because of the unique qualities of Zuni Salt Lake and other areas potentially affected by the proposed project, a non-use value study be conducted as part of this environmental analysis, and that such a study should focus on (1) the total cost to power consumers and (2) the total cost of developing the Fence Lake mine versus the total cost of using alternative coal sources. The agencies considered this issue and determined that a non-use value study would be inappropriate for this analysis since establishing power rates and contracting for alternative sources of coal are inextricably linked to larger national issues that involve coal supply, demand, production and a competitive market system beyond the scope of this supplemental EIS. In addition, the analyses of specific issues found elsewhere in this supplemental EIS, e.g., hydrology, consistently indicate that there would be negligible to minimal impact to the environment under either of the alternatives that are being considered. "Use" or "non-use" of the resources in the proposed project area appears to be an issue that would have minimal impact on the quality of the human environment. Therefore, the implementation of a non-use value study was eliminated from further consideration.

- The need for conservation and for development of alternative energy sources - Members of the public suggested that the need for the Fence Lake mine could be negated through: (1) improved conservation practices on the part of power consumers and the power producer, and (2) the development and use of alternative energy sources. Current Federal and State mining policy allows surface coal mining to occur if compliance can be demonstrated with the applicable laws and regulations, many of which are based on the environmental requirements set forth in the Surface Mining Reclamation and Control Act of 1977 (SMCRA). Since development of coal resources appears to be Federal and State policy for the foreseeable future, and because this involves nationwide issues that are beyond the project-specific scope of this supplemental EIS, the issues of energy conservation and development of alternative energy resources have been eliminated from this analysis.

- Mining will benefit the City of Phoenix at the expense of Native Americans - Members of the public commented that SRP would be developing its proposed mine for the benefit of the power consumers living in the City of Phoenix, while the threat to the cultural and religious resources of Native American people is being ignored. One of the impacts that was analyzed in the BLM's 1990 Fence Lake Project EIS, and is being further analyzed in this supplemental EIS, is the potential impact of the proposed action to cultural and religious resources of Native American people. OSM contacted the seven Indian Tribes that expressed an interest in the project and invited each tribe to participate in the programmatic agreement (PA) on cultural resources and in the NEPA process. OSM also consulted with the Advisory Council on Historic Preservation and with the State Historic Preservation Officers for Arizona and New Mexico during the development of the PA and invited them to participate in the NEPA process. The potential impact of the proposed project to cultural and religious resources of Native American people is a central issue in this process and it is analyzed at length in chapter 4 of this supplemental EIS. Potential benefits from the proposed project to power consumers living in the City of Phoenix is not an impact of mining at the Fence Lake mine and is beyond the scope of this supplemental EIS. For these reasons, this issue has been eliminated from further consideration.

- The proposed Fence Lake mine would have a negative impact on the McKinley mine, which would result in a negative socioeconomic impact on the Navajo Nation - Members of the public suggested that competition from the proposed Fence Lake mine would reduce the market for coal currently being produced at the McKinley mine, which currently sends most of its production to the Coronado Generating Station, and that this would have a negative impact on the Navajo Nation in terms of employment and revenue it realizes from the McKinley mine. After identifying this issue, the Agency decided to eliminate it from further consideration because it relates to larger national issues that pertain to coal supply, demand, production or a competitive market system beyond the scope of the supplemental EIS. See chapter 1 for a description of the scope of the EIS analysis.

- The need to relate this project to OSM's involvement with the Black Mesa/Kayenta mines and railroad, and to Native American issues in and around those mines - Members of the public stated that the Fence Lake permit decision must not be made until OSM has fulfilled its SMCRA responsibilities for Native American issues at the Black Mesa/Kayenta mines and permitted the Black Mesa and Lake Powell Railroad. The Black Mesa/Kayenta mines are located approximately 175 miles from the proposed Fence Lake mine project area, are situated entirely on Indian lands, and are operated by Peabody Western Coal Company. The Fence Lake mine would be situated on Federal, State, and private land with no Indian land involved, and would be operated by Salt River Project (SRP). It is OSM's policy to consider regulating railroads connected to mines on a case-by-case basis. In the case of the proposed Fence Lake mine, SRP requested that the railroad corridor proposed in its permit application package be regulated in Arizona and New Mexico. The Black Mesa/Kayenta mines and the Black Mesa and Lake Powell Railroad, and Native American issues at and around those mines in northeastern Arizona are not impacts to mining at the proposed Fence Lake mine. Therefore, this issue has been dismissed from further analysis.

- Concern about replacement of natural resources, restoration of the environment to an original state, and environmental monitoring - Members of the public expressed concern about replacement of natural resources, restoration of the environment to an original state, and the extent of any environmental monitoring. These concerns have been addressed under separate topics in Chapter 4, "Environmental Consequences," in both the BLM's 1990 Fence Lake Project EIS and this supplemental EIS. Reclamation and monitoring procedures that would be required at the Fence Lake mine are contained in the State of New Mexico Surface Coal Mining Regulations and in the Arizona Federal Program. Therefore, these concerns are not analyzed as an identifiable group, but have been addressed as separate issues elsewhere in this supplemental EIS.

- Concern about lack of public notice and public involvement - Members of the public expressed concern about a lack of public notice and little public response to the proposed coal mining project. Section C on "Public Participation" in this chapter describes the various steps that were taken by OSM to provide the public with information about the proposed project and notification of opportunities to participate in public meetings and to submit comments on the proposal. OSM will continue to provide opportunities for the public to become involved in the project and will continue its policy of soliciting public comments and participation in the process. The agencies have no control over whether or not the public chooses to respond to these opportunities. For these reasons, the issue has been eliminated from further analysis.

- Concern about the powerplant's effect on air quality - Members of the public suggested that there would be a direct relationship between mining coal at Fence Lake and burning coal at the Coronado Generating Station, and that this relationship would result in increased emissions from the powerplant and a deterioration in air quality that should be addressed as part of this process. The powerplant currently burns coal produced at the McKinley mine in New Mexico and, in the future, could obtain coal from a number of different coal sources. Therefore, the powerplant would not necessarily be dependent on or have a direct relationship with the proposed Fence Lake mine. The agencies have concluded that producing coal at mines and burning coal at powerplants is a larger, nation-wide issue that is well beyond the scope of this supplemental EIS. In August 1977 the Bureau of Reclamation (lead agency), BLM and the U.S. Forest Service published a final EIS for the Coronado Generating Station that specifically addressed impacts to air quality from the powerplant. For these reasons, this issue has been eliminated from further analysis in this supplemental EIS.

CHAPTER 6

PREPARERS AND CONTRIBUTORS

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PREPARERS AND CONTRIBUTORS

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APPENDIX A

SUMMARY DESCRIPTION OF THE PROPOSED FENCE LAKE PROJECT

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The Salt River Project Agricultural Improvement and Power District (SRP) holds private, State and Federal coal leases within Catron and Cibola Counties, New Mexico. SRP proposes to mine coal within the two private, 20 State and two Federal coal leases during the proposed 40 year life-of-mine. The proposed project also in includes a railroad corridor. A railroad track, service road and power line are included in the railroad corridor. SRP has obtained or is in the process of obtaining all necessary State and Federal (40 acres of BLM land in Arizona) rights-of-ways for the railroad corridor.

1. Mining Location and Duration

The Fence Lake mine, a proposed surface coal mining operation, would be situated in Catron and Cibola Counties, New Mexico, in Townships 3 and 4 North, Ranges 16 and 17 West, New Mexico Principal Meridian, approximately 14 miles north of the town of Quemado (see Figure-1 in chapter 4). The proposed railroad corridor for the mine would extend for about 44 miles from Catron County, New Mexico into Apache County, Arizona to provide a direct link to SRP's Coronado Generating Station (CGS), located approximately 6 miles northeast of St. Johns, Arizona. The mine permit area and railroad corridor would contain approximately 18,119 acres with the disturbed and undisturbed acreage shown below. The mine permit area would consist of two private coal leases, 20 State coal leases and two Federal coal leases.

Table A-1

Approximate Permit Area in Acres

	Mine	Corridor	Total
Disturbed	7,885	NM 280 ARIZ 267	8,432
Undisturbed	8,928	NM 609 ARIZ 150	9,687
Total	16,813	1,306	18,119

The total life of the mine would be approximately 50 years: 2 years for premining development; 38 years to recover approximately 81.3 million tons of coal; and 10 years to reclaim the area and obtain final bond release. The anticipated maximum coal production rate during the first 5 years would be 1.8 million tons per year. The anticipated maximum coal production rate during the life of the mine would be 3.2 million tons per year.

2. Employment

During the 2-year premining development phase, employment would fluctuate between 100 to 160 workers during the construction of mine facilities and the railroad corridor. Operation of the mine over 38 years would require a workforce numbering between 74 and 134 workers. About 10 workers would be needed to operate and maintain the railroad corridor during the life-of-mine.

3. Mine Facilities

The majority of facilities proposed for the Fence Lake mine would be centrally located on approximately 90 acres of surface area just east of the railroad loop (see Figure-3 in chapter 4).

Shop and Office Complex

The mine would have complete support facilities for equipment maintenance, parts warehousing, labor change facilities, and administration offices. All buildings at the mine facilities complex would be one-story, pre-engineered metal buildings using 6- to 18-inch thick reinforced concrete slabs.

The dimensions of the main buildings would be as follows:

Building	Area (Square Feet)
Office/Changehouse	11,200
Shop/Warehouse	32,000
Wash Bay	4,000
Bucket Repair Shed	1,200
Tire Repair Pad	3,600

Coal Handling System

The proposed coal handling facility would be centrally located for servicing the overall reserve area, being in close proximity to the rail loop and to the initial mining area. From the mine pits, run-of-mine coal would be transported by coal haulers to a dump facility. From the hopper at the dump facility, the coal would be routed via belt conveyor through a two-stage crushing system (6-inch and 3-inch) to a radial stacking conveyor for discharging the crushed product onto a stockpile. The stockpile would hold up to 80,000 tons of coal (30,000 tons in active storage) for transfer via vibrating feeders to an underlying reclaim tunnel. From within the tunnel, a transfer conveyor would route the coal to the rail loadout station for shipping the coal by train to CGS. Dust from the coal handling and loadout facility systems would be controlled by water or chemical surfactant, as needed.

Ancillary Facilities

Other support facilities would include sewage treatment facilities (800 sf), a water storage tank (25 ft diameter), bulk ammonium nitrate and fuel oil mixture (ANFO) silos and detonator magazines. Water would be supplied by an existing well(s) drilled by SRP. Fuel would be stored in aboveground tanks surrounded by spill containment structures.

Electric power would be provided for the mine via an incoming 69 kilovolt (kV) power line running parallel to the railroad in the corridor from CGS. The entire line would be owned by Socorro Electric Cooperative, Inc. (SEC). SEC would also construct a substation to step the voltage to the appropriate level for service to the mine including the mine facilities, coal handling systems, draglines, overburden drills, and possibly depressurization pumps. The right-of-way for the power line would fall entirely within the right-of-way provided for the railroad. The powerline would be above-ground utilizing wooden, steel, or concrete power poles averaging 65 to 75 feet in height with a maximum height of 85 feet. Avian protection would be inherent in the structure design. The structure would be designed for 115 kV clearances, specifically six and seven foot davit arms with the conductor suspended below the end of the arms and eight foot minimum spacing between phases. Another feature of the line design that would promote avian safety would be an overhead ground wire located at the top of the pole. No equipment that could compromise any clearances, such as a transformer or arrester, would be installed on the transmission structure. The substation and distribution line out of the substation would be constructed with raptor protection approved by the Rural Utilities Service (RUS).

4. Roads and Railroads

Two main access roads would be used. To approach the mine property from the east from State Highway 117, the existing Hubbell Road (an earthen County Road) would be used. However, from a point westward beginning in Section 33, T4N, Rl6W (see Figure-1 in chapter 4), a new section of road would be constructed to bypass the Central Ridge Extension mining area. To approach the mine property from the south-southeast, from U. S. Highway 60 at Quemado, the existing graveled County Road would be used.

Primary coal haul roads would be constructed throughout the mine area, connecting each mining area to the coal dump. These roads would be up to 65 feet in width or 2.5 times the width of the widest truck to be used. Some sections of theses roads would be mined-through as the pits advance.

A railroad would be established to link the mine and the Coronado Generating Station, requiring a total rail length of about 44 miles (see Figure-2 in chapter 4). The right-of-way for the proposed railroad would vary from 150 to 250 feet in width. The railroad corridor would include the railroad, an adjacent road allowing for two-way traffic and the 69 kV power line. The track structure consists of rails, ties, tie spacing plates, spikes, anchors, ballast, and sub-ballast. Ballast and sub-ballast depths and tie spacing were calculated to allow a subgrade bearing pressure of 20psi. The 20 inches of ballast, including both subballast and ballast, and 19½-inch tie spacing, result in a pressure on the subgrade safely below 20 psi. The design optimizes the balance between excavation and embankment with no organic material or organic soils being utilized as fill material. Steep cut and fill slopes would be benched and surface drainage would be directed away from slope faces to avoid erosion.

5. Drainage and Sediment Control Structures

All runoff from disturbed areas of mining operations would be passed through sediment control structures. The drainage and sediment control plan for the Fence Lake Mine would utilize a system of diversion channels, collection channels, and sediment ponds. The diversion channels would divert drainage from undisturbed areas away from the mining area, and collection channels would route runoff from the disturbed mining areas into the sediment ponds. Runoff from coal storage and coal loading areas would also be routed through channels to ponds.

For the first five years, only two sediment ponds would be necessary. However, for the entire area covering the life of the mine, the area can be divided into 23 watersheds. At the base of each watershed, one or more ponds would be installed to control sediment discharge from that respective watershed. Approximately 23 ponds would be utilized. Most of the ponds would be temporary and would be ultimately reclaimed.

Sediment pond systems would be sufficient to control runoff and sediment discharge from a 10-year, 24-hour storm event. For the Fence Lake Mine area, that storm event is defined as yielding 1.85 inches of rain (NOAA 1974). Any ponds in the proposed mine permit area designed to impound more than 10 acre-feet of water would also require a permit from the New Mexico State Engineer's Office. No ponds are proposed for the railroad corridor.

Some ponds may be designed for total containment. However, to cover the possibility of a pond discharging, a National Pollutant Discharge Elimination System (NPDES) Permit would be secured from EPA.

Existing surface water monitoring stations would be operated and maintained throughout and after the life of the mine, for checking both water quality and quantity.

6. Coal Mining Methods

The surface mining activity would incorporate a combination of drag line operations and prestrip benches with coal being extracted from shallow areas where the coal is at or near outcrop, to some deep areas resulting in a maximum pit depth of 240 feet.

After vegetation has been cleared and topdressing has been salvaged, most of the overburden and some of the interburden would be drilled and blasted for initial fracturing, and subsequently removed with an electric-powered dragline, with possible truck and shovel support where greater overburden thickness is encountered. Further mining assistance would be provided by dozers, scrapers, and castblasting. As the mining advances, the overburden removed from an active cut would be cast into the void of the previous cut as spoil. Coal seams would be ripped by dozer and then loaded to trucks or coal haulers by loader or shovel.

Mining would take place progressively in five separate reserve areas: Central Ridge Extension, Valley, Central Ridge, Penthouse, and Northwest. Mining would begin in the southwestern end of the Central Ridge Extension reserve area in Year 3. In approximately the 11th year of mining, stripping would begin in the Valley reserve area, concurrent with the mining in the Central Ridge Extension reserve area. As shown below, mining is planned to commence in the Central Ridge, Penthouse, and Northwest reserve areas respectively in years 16, 21 and 26.

Reserve Area	Permit Years
Central Ridge Extension	Years 3-20
Valley	Years 11-20
Central Ridge	Years 16-35
Penthouse	Years 21-40
Northwest	Years 26-35

7. Reclamation

Reclamation would be concurrent with mining. As mining advances, the overburden stripped from one cut would be backfilled as spoil into the previous cut. Rough backfilling would be completed as soon as possible after coal removal. Highwalls would be eliminated by backfill operations. The top four feet of backfilled spoil would be composed of material suitable for revegetation.

Unsuitable material in the overburden (e.g., highly carbonaceous units and acid-forming material), if encountered in the course of mining, would be selectively handled in accordance with site-specific special-handling plans. Marginally suitable material in the overburden would also be handled selectively, if the normal course of mining can not assure proper placement of such material in the backfill. SRP would identify any potential acid- and toxic-forming material (PATFM) through a graded spoil PATFM monitoring plan. After completion of final grading, spoil samples are collected and sent to a laboratory for analytical testing. If laboratory results indicate that a sampled site exceeds a PATFM threshold concentration, mitigation options would be implemented prior to replacement of topdressing. If unsuitable material is found to exist at a sample location, either the entire representative sample square may be mitigated or the boundary of the unsuitable material may be delineated further by quartering the grid to obtain additional samples. When mitigative actions are to be taken, measures employed would ensure that suitable spoil material occupies the upper 42 inches off the graded surface prior to topdressing replacement. Mitigation alternatives shall consist of either exporting unsuitable material, chemically treating the PATFM, or by other alternative methods acceptable to the regulatory authority.

All disturbed areas would be backfilled and graded to the approximate original contour. This would include leveling and grading the spoils, and backfilling and grading the final end cuts. Grading work would lag behind active mining work by a maximum of four cuts. After backfilling and recontouring, a minimum of six inches of topdressing would be replaced on top of the graded spoils within the mined areas. Also, the spoils would be scarified before topdressing is replaced, to minimize slippage and to allow root penetration.

As mining progresses, topdressing would be removed ahead of the mining. During the life-of-mine, a total of about 6.5 million bank cubic yards (BCY) of topdressing would be salvaged and replaced, of which about 70 percent or 4.55 million BCY would be directly hauled back to reclaimed areas as live soil. The balance of the soil, about 30 percent or 1.95 million BCY, would be placed in 16 stockpiles next to the mine pits. The topdressing stockpiles would be placed in stable, protected areas, away from any active stream courses. The gradient of the slopes on the stockpiles would not exceed 3h:1v. To protect against wind and water erosion during storage, stockpiles would be planted using a temporary or permanent seed mixture if it is expected to be inactive for two years or longer. Stockpiles that are expected to be redisturbed within two years would be seeded with a temporary seed mix. In addition, a perimeter berm would be constructed around all stockpiles to prevent the loss of topdressing during a precipitation event.

After lands have been regraded and topdressed, the seedbed would be prepared and the approved permanent seed mixture planted during the first normal planting season (see Table A-2 in this appendix). Seedbed preparation would be conducted on the contour to reduce erosion, and would be done in such a manner that spoil material would not be mixed with the topdressing. All planting would be done on the contour to reduce wind and water erosion. The nutrient level in the topdressing would be determined through testing. Where needed, custom fertilizer blends would be applied to the topdressing to enhance deficient nutrient levels based on this testing. All seeded areas would be mulched utilizing hay or straw at an application rate of 1.5 to 2.0 tons per acre. The mulch would be mechanically applied with a blower, and subsequently crimped to reduce wind loss and stacking. The area would be monitored for reclamation success for a minimum of 10 years after final seeding, or until final bond release.

Table A-2

Revegetation Seed Mix

Grasses	Forbs	Shrubs
Arizona fescue	blanket flower	fourwing saltbush
blue grama	blue flax	shad scale
Indian ricegrass	gooseberryleaf globemallow	winterfat
New Mexico feathergrass	Palmer penstemon	
sideoats grama	prairie coneflower	
galleta	purple aster	
western wheatgrass	purple prairie clover	
alkali sacaton	rocky mountain penstemon	
sand dropseed	showy goldeneye	

The time frame for any given area to remain in a disturbed condition (i.e., from topdressing removal to revegetation) is expected to be around two to four years, with a major component of the time resulting from the pre-stripping disturbance in advance of the mining.

When returning the site to the postmining land use, all mine-related buildings, structures and other man-made items not identified and approved for postmining land use would be removed. All buildings, concrete foundations, and slabs would be removed. All structures used for coal crushing, storage and the loadout facility would be removed. Eight miles of powerline that would deliver and distribute high-voltage electricity to the mine facilities and electrically-powered equipment would be removed from the permit area. The rail, spikes, plates, ties, and other railroad-related structures would be removed from the roadbed extending from the mine site to CGS. If written permission is obtained from the respective property owners, SRP would convert the remaining section of railroad corridor extending from the permit area to CGS into a permanent road with an adjacent powerline. Any surface areas included in the railroad corridor for which the property owner would not grant permission for such a conversion would have to be reclaimed in accordance with applicable Federal and State regulations.

APPENDIX B

SUMMARY DESCRIPTION OF CUMULATIVE DEVELOPMENT

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Several established business operations, expansion projects, and proposed activities in the study area could have cumulative effects on the human environment in combination with the proposed Fence Lake project. The following paragraphs describe existing or expanding developments, and new projects that may compete with the Fence Lake project for local employees or that may produce cumulative impacts in conjunction with the proposed project.

- Coronado Generating Station - The Coronado Generating Station (CGS) is an existing facility located approximately 6 miles north of St. Johns in Apache County, Arizona. The facility is owned and operated by the SRP. Although connected to larger power grids, it normally supplies power mainly to the Phoenix area. Construction began in 1975 and the facility became operational in 1979. CGS produces power from two 350-megawatt generating units. Employees are drawn primarily from communities of St. Johns, Show Low, and Springerville, Arizona. During the past several years CGS has been undergoing reorganization and downsizing. In 1988-89, CGS had 507 employees, but by 1995 had downsized to 287 employees. Plans are currently being developed to demolish a third generating unit on which construction was started but never completed.

- Springerville Generating Station - The Springerville Generating Station (SGS) is an existing facility located approximately 6 miles northeast of Springerville in Apache County, Arizona. It is owned and operated by the Tucson Electric Power Company (TEPCO) and supplies power to the Tucson area. It consists of two 360-megawatt generating units. In 1991-92, SGS had 254 employees. By 1995 the number of employees had declined to 237. The majority of these employees live in or near the communities of St. Johns, Show Low, and Springerville.

- Arizona State Prison Complex Winslow - Apache Unit - A minimum-security prison facility is located approximately 15 miles north of Springerville in Apache County, Arizona. It was opened for operation in December 1994 and is designed to accommodate 334 inmates. It has 109 employees and various contractors servicing its needs. The employees reside in a number of communities in the surrounding region, including Springerville, St. Johns, Show Low, and White Mountain Arizona. There are no immediate plans to expand this recently opened facility.

- Atchison, Topeka & Santa Fe Railway Spur - An existing railroad spur is located south of the vicinity of Holbrook, Arizona and extends for approximately 70 miles in Apache County. The spur is operated by the Atchison, Topeka & Santa Fe Railway, but it is jointly owned by SRP and TEPCO. The spur is currently used for the transport of coal to the Coronado Generating Station and the Springerville Generating Station. Operation of the spur requires only minimal employee involvement at the generating stations, e.g., one employee at CSG is assigned to the operation of the spur. The crew of approximately 3 people that actually operates the coal trains on the spur are employees of the Atchison, Topeka & Santa Fe Railway.

- Other projects and/or developments - According to county officials contacted in Catron, Cibola, and Apache counties, and Federal and State authorities, there are no new substantive projects or expansion of existing projects currently being planned for the Fence Lake project area. Some preliminary oil, gas, and mineral exploration is occurring in both Arizona and New Mexico in the vicinity of the Fence Lake project area, but none of these activities have progressed far enough to provide details for any meaningful analysis of future development.

- Summary of Cumulative Development - The Fence Lake project study area, in general, is not experiencing major growth in mining, manufacturing, construction, government services or in any other economic activities that have been traditionally important to the area (see socioeconomics in chapters 3 and 4). The trend in existing projects seems to be one of reducing the level of activity and downsizing the workforce. This trend is most pronounced in Cibola County, New Mexico, where the collapse of the uranium market in recent years plunged the county into a severe economic depression. Instead of developing new or expanded projects, the immediate concern throughout most of the project area is to maintain existing levels of development and associated employment levels. Limited highway improvement and other types of maintenance activities are occurring in the project area, but these have only a negligible impact on the cumulative development of the area. The proposed Fence Lake mine and railroad corridor appears to be the only new project that would have substantial impact on the cumulative development of the area in the foreseeable future.

APPENDIX C

BIBLIOGRAPHY

APPENDIX C

BIBLIOGRAPHY

The following supplemental bibliographies are intended to be used in conjunction with the bibliographies found in Appendix B of the BLM draft EIS (Supplemental EIS, Volume II):

BIOLOGICAL RESOURCES

American Ornithologist's Union. 1957. The A.O.U. checklist of North American birds. fifth ed. Port City Press, Baltimore, MD. 691 pp.

Arizona Game and Fish Department (AGFD). 1993. Bats of Arizona. Arizona Wildlife Views Vol. 36, No. 8. Special Heritage Edition. Ariz. Game and Fish Dept., Phoenix, AZ 35 pp.

________________. 1988. Threatened native wildlife in Arizona. Arizona Game & Fish Department Phoenix, AZ. 31 pp.

Bradbury, J.P. 1971. Limnology of Zuni Salt Lake, New Mexico in Geological Society of America Bulletin, v. 82, p. 370-398, 12 Figures.

Cockrum, E.L. and B.F. Musgrove. 1964. Additional records of the Mexican big-eared bat, *Plecotus phyllotus* (Allen) from Arizona. J. Mamm., 45:472-74

Commissaris, L.R. 1961. The Mexican big-eared bat in Arizona. J. Mamm., 42:61-65.

Dames & Moore, Inc. 1992. Fence Lake No. 1 Mine results of spring 1991 raptor nest monitoring and summary of raptor observations for the period 29 September 1982 through 17 May 1991. Final Report submitted to Salt River Project. 7 pp + Appendix.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1992. Birds in jeopardy. Stanford University Press, Stanford, CA. 259 pp.

Findley, J.S., A.H Harris, D.E. Wilson, and C. Jones. 1975. Mammals of New Mexico. Univ. of New Mexico Press, Albuquerque, NM. 360 pp.

Frybarger, Tim. 1993. New Mexico Department of Game and Fish personal communication to Ken Rodgers (SRP).

Hooe, Winford. 1993. Arizona Game and Fish Department personal communications to Ken Rodgers (SRP).

Hoffmeister, D.F. 1986. Mammals of Arizona. University of Arizona Press and the Arizona Game and Fish Department, Tucson, AZ. 602 pp.

Hubbard, J.P. 1970. Check-list of the birds of New Mexico. New Mexico Ornithological Society Publ. No. 3. Albuquerque, NM. 107 pp.

Johnsgard, P.A. 1988. North American owls. Smithsonian Institution Press, Washington, D.C. 295 pp.

Lowe, C.H., Jr. 1964. Amphibians and reptiles of Arizona. Part 3, pp 153-174 *in* C.H. Lowe, Jr., Ed. The vertebrates of Arizona. Univ. of Ariz. Press, Tucson, AZ 270 pp.

Monson, G. and A.R. Phillips. 1981. Annotated checklist of the birds of Arizona. Second Ed. University of Arizona Press, Tucson, AZ. 240 pp.

New Mexico Department of Game and Fish (NMDGF). 1988. Handbook of species endangered in New Mexico. New Mexico Dept. of Game and Fish, Santa Fe, NM.

Nowak, R.M. 1991. Walker's mammals of the world. Fifth Ed. Vol.1 Johns Hopkins Univ. Press, Baltimore MD and London, UK 642 pp.

Reynolds, R.T., R.T. Graham, M.H. Reiser, R.L. Bassett, P.L. Kennedy, D.A. Boyce, G. Goodwin, R. Smith, and E.L. Fisher. 1991. Management recommendations for the northern goshawk in the southwestern United States. USDA, Forest Service, Southwestern Region, U.S. Government Printing Office 1992-0-673-223/40036. 184 pp.

Rutman, S. 1992. Handbook of Arizona's endangered, threatened, and candidate plants. U.S. Fish and Wildlife Service, Phoenix, AZ. 57 pp

Sivinski, R. and K. Lightfoot, Eds. 1995. Inventory of the rare and endangered plants of New Mexico. Third Ed. New Mexico Forestry and Resources Conservation Division, Energy Minerals and Natural Resources Department Misc. Publ. No. 4 47 pp.

Stebbins, R.C. 1985. Western reptiles and amphibians. Second. Ed. Peterson Field Guide Series. Houghton Mifflin Co., Boston 336 pp.

Tibbitts, T. J., M. K. Sogge, and S. J. Sferra. 1994. A Survey Protocol for the Southwestern Willow Flycatcher (Empidonax traillii extimus). National Park Service Technical Report D-122, National Park Service, Denver, Colorado. 25 pp.

U.S. Fish and Wildlife Service. 1991. Endangered and threatened wildlife and plants; animal candidate review for listing as endangered or threatened species, proposed rule. November 21. Federal Register 56(225):58804-58836.

_______________. 1992. Endangered and threatened wildlife and plants; notice of finding on petition to list the ferruginous hawk. August 19. Federal Register 57(161):37507-37513

_______________. 1994. Endangered and threatened wildlife and plants; animal candidate review for listing as endangered or threatened species; proposed rule. Fed. Regist. Vol 59, No. 219:58982-59026.

_______________. 1995. Endangered and threatened wildlife and plants; Final Rule determining endangered status for the southwestern willow flycatcher. 50 CFR part 17. Fed. Regist. Vol 60, No. 38, February 27, 1995.

U.S.D.I. 1982. DEIS/FEIS - West Socorro Rangeland Management Program, USDI-BLM, 1982 and Annual Updates.

CULTURAL RESOURCES

LIST OF REFERENCES

Bernard-Shaw, Mary, 1993. Archaeological Survey within the Proposed Salt River Project Fence Lake Coal Mine Area. Zuni Cultural Resource Enterprise, Zuni Archaeology Program Report No. 393.

Camilli, Eileen, Dabney Ford and Signa Larralde. 1988 Archeological Investigations in West-Central New Mexico, Volume I: Report of the First Field Season. New Mexico Bureau of Land Management Cultural Resource Series No. 3. Santa Fe.

Elyea, Janette. 1988. An Archaeological Survey of 22 Proposed Drill Hole Locations Near Quemado, New Mexico for the Salt River Project. Office of Contract Archeology, University of New Mexico, Albuquerque.

1989. An Archaeological Survey of the Fence Lake Coal Lease Exclusion Area Near Quemado, New Mexico. Office of Contract Archeology, University of New Mexico, Albuquerque.

Fletcher, Thomas F. 1994. Treatment Plan for Archaeological Resources in the Fence Lake Coal Lease Area and Transportation Corridor. Zuni Cultural Resource Enterprise, Zuni Archaeology Program Report No. 414. Flagstaff.

Gilpin, Dennis and Richard A. Anduze. 1994a. A Cultural Resource Survey of the Salt River Project Fence Lake Coal Mine Transportation Corridor Reroute 3 in Catron County, New Mexico. SWCA Archaeological Report 94-151, Flagstaff.

1994b. A Cultural Resource Evaluation of the Salt River Project Fence Lake Coal Mine and Transportation Corridor in Catron County, New Mexico. SWCA Archaeological Report 94-152, Flagstaff.

Greenwald, David H. (Editor). 1993. Results of Archaeological Testing Along the Fence Lake Transportation Corridor, Arizona. SWCA, Inc., Flagstaff.

Hart, E. Richard and T.J. Ferguson (editors). 1993. Traditional Cultural Properties of Four Tribes: The Fence Lake Mine Project. The Institute of the North American West, Flagstaff.

Hogan, Patrick. 1985. Prehistoric Settlement Patterns in WestCentral New Mexico: The Fence Lake Coal Lease Surveys. Office of Contract Archeology, University of New Mexico, Albuqerque.

Hogan, Patrick. 1987. Archeological Investigations at Eight Small Sites in West-Central New Mexico. Office of Contract Archeology, University of New Mexico.

Hogan, Patrick and Janette Elyea. 1983. Preliminary Report of an Archeological Survey of 30 Drill Locations and Associated Access Roads (Letter Report dated November 2). Office of Contract Archeology, University of New Mexico, Albuquerque.

Irwin-Williams, Cynthia. 1973. The Oshara Tradition: Origins of Anasazi Culture. Eastern New Mexico University Contributions in Anthropology 4(3). Portales.

Kayser, David and Charles Carroll. 1988. Archeological Investigations in West-Central New Mexico, Volume III: Report of the Final Field Season. New Mexico Bureau of Land Management, Cultural Resources Series No. 5. Santa Fe.

Kelley, Klara. 1988. Archeological Investigations in West-Central New Mexico, Volume 2: Historic Cultural Resources. New Mexico Bureau of Land Management, Cultural resources Series No. 4. Santa Fe.

Morris, Kaea. 1992. An Archaeological Survey of the Proposed Salt River Project Fence Lake Transportation Corridor in New Mexico. Zuni Cultural Resource Enterprise, Zuni Archaeology Program Report No. 382. Flagstaff.

1993. Addendum to Archaeological Survey within the Proposed Salt River Project Fence Lake Coal Mine Area. Zuni Cultural Resource Enterprise, Zuni Archaeology Program Report No. 393a. Flagstaff.

O'Brien, Patrick M. 1987. The Archaeology of Carrizo Wash: A Partial Cultural Resource Inventory of a Proposed Transportation Corridor. Dames and Moore, Phoenix.

Parker, Patricia L. and Thomas F. King. 1990. Guidelines for Evaluating and Documenting Traditional Cultural Properties. U.S. Department of Interior, National Park Service, National Register Bulletin No. 38.

Plog, Stephen, Fred Plog and Walter Wait. 1978. Decision Making in Modern Surveys. In Advances in Archaeological Method and Theory, Volume 1, edited by Michael B. Schiffer, pp. 383-421. Academic Press, New York.

Sayles, Edwin B. and Ernst Antevs. 1941. The Cochise Culture. Gila Pueblo, Medallion Paper 29. Globe, Arizona.

USDI, Bureau of Land Management. 1982. NM-231-3032, Memorandum of Understanding between Bureau of Land Management, New Mexico and State of New Mexico, Energy and Minerals Department for Paleontological Mitigation Procedures on BLM Managed Mining Leases in New Mexico.

Winter Joseph C. and Patrick F. Hogan. 1986. Preliminary Report of an Archaeological Survey of the Proposed Fence Lake No. 1 Haul Road and Associated Gravel Quarry near Quemado, New Mexico. Office of Contract Archeology, University of New Mexico, Albuquerque.

ANNOTATED BIBLIOGRAPHY OF THE ARCHAEOLOGICAL REPORTS SUBMITTED IN THE FENCE LAKE COAL MINE PERMIT APPLICATION PACKAGE

Bernard-Shaw, Mary
1993 *Archaeological Survey within the Proposed Salt River Project Fence Lake Coal Mine Area.* Zuni Archaeology Program Report No. 393. Zuni Pueblo, New Mexico.

The report documents the intensive archaeological inventory of 7840 acres located within the boundaries of the proposed Fence Lake Coal Mine. These lands are comprised of 5240 acres of federal coal lease (BLM), 440 acres of State Trust Land and 5240 acres of land under private ownership. A total of 266 archaeological sites and 708 isolated occurrences were documented during the inventory.

Elyea, Janette
1989 *An Archeological Survey of the Fence Lake Coal Lease Exclusion Area Near Quemado, New Mexico.* University of New Mexico, Office of Contract Archeology, Albuquerque.

The report is a summary of intensive archaeological inventory of 640 acres of private surface and minerals estates associated with the Hubbell Ranch Headquarters and Garcia Lake. A total of 17 archaeological sites and 134 isolated occurrences were identified and documented during the inventory.

Fletcher, Thomas F.
1994 *Treatment Plan for Archaeological Resources in the Fence Lake Coal Lease Area and Transportation Corridor.* Zuni Archaeological Program Report No. 414.

The treatment plan is the umbrella document that outlines research issues and field methodologies and procedures to be followed in future archaeological data recovery programs conducted at the mine. The Treatment plan is a provision of the Programmatic Agreement, executed by the Bureau of Land Management, the Office of Surface Mining, the New Mexico and Arizona Historic Preservation Officers and the Advisory Council on Historic Preservation, in order to comply with the provisions of the National Historic Preservation Act of 1966, amended 1990.

Gilpin, Dennis and Richard A. Anduze
1994a *A Cultural Resource Survey of the Salt River Project Fence Lake Coal Mine Transportation Corridor Reroute 3 in Catron County, New Mexico.* SWCA Archaeological Report 94-151, Flagstaff.

SWCA intensively inventoried a total of 3 new sections within the railroad corridor in Catron County, New Mexico. The surveyed area measured 22,200 feet by 250 feet for a total of 150.48 acres. Two previously identified sites, 4 new sites and 16 isolated occurrences were documented.

1994b *A Cultural Resource Evaluation of the Salt River Project Fence Lake Coal Mine and Transportation Corridor in Catron County, New Mexico.* SWCA Archaeological Report 94-152, Flagstaff.

In an attempt to gather additional information on archaeological sites that may be affected by the proposed transportation corridor, SWCA evaluated 7 previously recorded sites located in Catron County, New Mexico. An eighth site could not be relocated. The project was designed to confirm the location of each site, to prepare additional site plan maps, to develop more detailed recordation of surface artifacts, and to collect information that can be used in the future to evaluate the potential for subsurface remains at each site. Finally, the report includes recommendations for further investigations at each site.

Greenwald, David H.
1993 *Results of Archaeological Testing Along the Fence Lake Transportation Corridor, Arizona.* SWCA Archaeological Report No. 93-20, Flagstaff.

The report presents the results of a program designed to determine if 28 sites identified in the Arizona section of the proposed Fence Lake railroad corridor may be eligible for the National Register of Historic Places. SWCA used a combination of surface artifact collection and mechanical excavation to evaluate the data potential, vertical and horizontal limits and integrity of each site. In addition, the excavations were designed to obtain data on the geomorphology and Paleoenvironment of this part of the proposed project area.

From the results of the testing program it was determined that 22 of the sites should be considered eligible for the National Register of Historic Places under criterion "d" of 36 CFR 60.4 (i.e., the sites contain data that can be used to understand the prehistory of this region of the Southwest). The other six sites were not considered eligible for the National Register of Historic Places.

Hart, E. Richard and T.J. Ferguson (editors)
1993 *Traditional Cultural Properties of Four Tribes: The Fence Lake Mine Project, Volume I and Volume II.* The Institute of the North American West, Flagstaff.

Volume I contains three chapters.

Chapter 1, by Hart and Ferguson, presents a general introduction to the ethnohistorical study designed to obtain information about Native American Traditional Cultural Properties that may be affected by the proposed Fence Lake Coal Mine. Four Native American groups chose to participate: the Acoma Tribe, the Hopi Tribe, the Ramah Chapter of the Navajo and the Zuni Tribe. The study was undertaken to comply with the provisions of the National Historic Preservation Act, 1966, amended 1990, the American Indian Religious Freedom Act, and the Native American Grave Repatriation Act.

Chapter 2, by Hart and Andrew L. Othole, summarizes the historic and cultural importance of Zuni Salt Lake to the Zuni Tribe. The authors present a good historic context for evaluating Traditional Cultural Properties located in or near the proposed coal mine.

Chapter 3, by G. Lennis Berlin, Ferguson and Hart, presents the finding of a study that integrated remote sensing techniques, historic documentation and field investigations designed to identify prehistoric and historic remnants of Native American pilgrimage trails to the Zuni Salt Lake. A number of trail segments proposed to be the remnants of prehistoric and historic trail systems are identified and described.

Volume II contains five chapters.

Chapter 4, by Ferguson and Eric Polingyouma, summarizes the Hopi Tribe's historic and cultural use of the Zuni Salt Lake, discusses associated Traditional Cultural Properties and summarizes the tribes concerns about the proposed Fence Lake Coal Mine.

Chapter 5, by Alfred E. Dittert, Jr. and Ward Alan Minge, describes the results of ethnohistoric research into the Acoma Tribe's use of the Zuni Salt Lake, the lands encompassed by the proposed coal mine and presents tribal concerns about the proposed project.

Chapter 6, by Jean Ann Mercer, describes the Ramah Navajo's use of the Zuni Salt Lake and other Traditional Cultural Properties located in the vicinity of the proposed coal mine. The chapter also presents a summary of Tribal concerns about the proposed project.

Chapter 7, by Hart and Ferguson, summarizes the findings of each ethnohistoric study and tribal recommendations and comments. The authors also use the information collected in the study to make a preliminary analysis of the eligibility of Zuni Salt Lake and other Traditional Cultural Properties to the National Register of Historic Places.

Chapter 8 is an appendix summarizing the meetings held between the different Native American Tribes and Salt River Project, Institute for the American West and various State and Federal agencies prior to the publication of the report.

Hogan, Patrick

1985 *Prehistoric Settlement Patterns in West-Central New Mexico: The Fence Lake Coal Lease Surveys*. University of New Mexico, Office of Contract Archeology, Albuquerque.

The report summarizes the results of an intensive archaeological inventory of 8480 acres of the 9120 acres of State of New Mexico Trust Lands leased to the Salt River Project. The Office of Contract Archeology documented 223 archaeological sites and 903 isolated occurrences within the State Coal Lease Area.

1987 *Archaeological Investigations at Eight Small Sites in West-Central New Mexico: Data Recovery at the Fence Lake No. 1 Mine*. University of New Mexico, Office of Contract Archeology, Albuquerque.

The report documents the results of a data recovery program conducted at eight sites that were located within the area affected by the Fence Lake No. 1 Coal Mine. The sites were excavated prior to construction of the surface coal mine.

Morris, Kaea J.

1992 *An Archaeological Survey of the Proposed Salt River Project Fence Lake Transportation Corridor in New Mexico*. Zuni Archaeology Program Report No. 382. Zuni Pueblo, New Mexico.

The report documents the results of the intensive archaeological inventory of 1026 acres associated with the proposed coal mine's transportation corridor in New Mexico. The representatives of the Zuni Archaeology Program identified 37 previously unidentified and 2 previously recorded archaeological sites and 74 isolated occurrences. The areas inventoried are owned by the State and the Salt River Project.

1993 *Addendum to Archaeological Survey within the Proposed Salt River Project Fence Lake Coal Mine Area*. Zuni Archaeology Program Report No. 393A. Zuni Pueblo, New Mexico.

The report documents the intensive archaeological inventory of 250 acres of privately owned land near Cerro Prieto. Twelve archaeological sites and 34 isolated occurrences were documented during the inventory.

O'Brien, Patrick M.
1987 *The Archaeology of Carrizo Wash: A Partial Cultural Resource Inventory of a Proposed Transportation Corridor, Apache County, Arizona and Catron County, New Mexico.* Dames & Moore, Phoenix.

The report documents the intensive archaeological inventory of 15 miles (approximately 245 acres) of proposed transportation corridor located in Apache County, Arizona. A total of 27 archaeological sites were identified and documented by the Dames & Moore archaeologists.

HYDROLOGY

Arkell, B.W. 1984a, Geology and coal resources of the Techado quadrangle, Catron and Cibola Counties, New Mexico: New Mexico Bur. Mines and Min. Res. Open-File Rept. 221, 21 pp.

Baldridge, W.S., Perry, F.V., Vaniman, D.T., Nealey, L.D., Leavy, B.D., Kyle, P., Bartov, Y., Steinitz, G., Gladney, E.S., Laughlin, A.W. and Wohletz, K.H., 1989, Excursion 8A: Magmatism associated with lithospheric extension: Middle to late Cenozoic magmatism of the southeastern Colorado Plateau and central Rio Grande rift, New Mexico and Arizona, in Field excursions to volcanic terranes in the western United States, Volume 1: Southern Rocky Mountain region: New Mexico Bur. Mines and Min. Res. Mem.46, p.187-230

Bureau of Land Management, U.S. Department of Interior, 1990, Draft EIS for the Fence Lake Project: USDI/BLM

Bureau of Land Management, U.S. Department of Interior, 1982, Draft EIS for the West Socorro rangeland management program: USDI/BLM Washington, DC, 578 pp.

Bureau of Land Management, U.S. Department of Interior, 1988, Proposed Socorro management plan and EIS: USDI/BLM, Washington DC, 400 pp.

Campbell, F.W., 1987, Coal geology of the Salt Lake coal field, in Coal Deposits and facies changes along the southwestern margin of the Late Cretaceous seaway, west-central New Mexico (G.H. Roybal, O.J. Anderson, and E.C. Beaumont, eds.): New Mexico Bur. Mines and Min. Res. Bull. 121, p. 65-72

Campbell, F.W., 1989, Geology and coal resources of Fence Lake 1:50,000 quadrangle: New Mexico Bur. Mines and Min. Res. Geol. Map 62

Campbell, F.W. and Roybal, G.H., 1984, Geology and coal resources of the Fence Lake 1:50,000 quadrangle, Catron and Cibola counties, New Mexico: New Mexico Bur. Mines and Min. Res. Open-File Rept. 207, 36 pp.

Cather, S.M., 1982, Lacustrine sediments of Baca Formation (Eocene), western Socorro County, New Mexico: New Mexico Geology, vol. 4, no. 1, p. 1-5

Colorado River Basin Salinity Control Forum, Water Quality Standards for Salinity, Colorado River System, 1990

Colt Industries, 1979, Hydraulic Handbook, Colt Industries, Inc., Kansas City, MO, 248 p.

Cook, K.H. and Arkell, B. W., 1987, Geology and coal resources of the Mariano Springs quadrangle, Catron Counties, New Mexico: New Mexico Bur. Mines and Min. Res. Open-File Rept. 221, 21 pp.

Cummings, D., Geologic map of the Zuni Salt Lake volcanic crater Catron County, New Mexico: USGS Miscellaneous Geologic Investigations Map I-544

Dolhopf, D.J., Wendt, G.W., Goering, J.D., and Hedberg, D.W., 1979, Hydrogeology of a watershed with subirrigated alluvial materials in crop production: Montana Ag. Exper. Sta. Bull. 715, 76 pp.

Elston, W.E. and McGetchin, T.R., 1974, Volcanic geology of parts of northern New Mexico and Arizona, with implications for the planet Mars: Geol.Soc.Am.Field Trip Guide (Rocky Mt.Sec. Meet.), 38 pp.

Fitzsimmons, J. P., 1959, Structure and geomorphology of west-central New Mexico in West-Central New Mexico (J.H. Weir, Jr. and E.H. Baltz, eds): New Mexico Geological Society Guidebook, 10th Field Conference, p. 112-117

Gabin, V.L. and Lesperance, L.E., 1977, New Mexico Climatological Data: W.K. Summers and Associates, Socorro, NM, 436 pp

Greenburg, M.A., 1987, Large-scale combustion test of Fence Lake coal at the Coronado Generating Station, in Coal Deposits and facies changes along the southwestern margin of the Late Cretaceous seaway, west-central New Mexico (G.H. Roybal, O.J. Anderson, and E.C. Beaumont, eta.): New Mexico Bur. Mines and Min. Res. Bull. 121, p. 79-83

Guilinger, D.R., 1982, Geology and uranium potential of the Tejana Mesa-Hubble Draw area, Catron County, New Mexico: New Mexico Bur. Mines and Min. Res. Open-File Rept. 176, 129 pp.

Hook, S.C., Molenaar, C.M., and Cobban, W.A., 1983, Stratigraphy and revision of nomenclature of upper Cenomanian to Turonian (Upper Cretaceous) rocks of west-central New Mexico, in, Contributions to mid-Cretaceous paleontology and stratigraphy of New Mexico-part II (S.C. Hook, ed): New Mexico Bur. Mines and Min. Res. Circ. 185, p. 7-27

Hunt, C.B., 1967, Physiography of the United States: W.B.Freeman and Co., San Francisco, 480 pp.

Kottlowski, F.E., Tabet, D.E., and Frost, S.J., 1979, New Mexico, in 1979 Keystone Coal Industry Manual: p. 524-533

Landis, E.R., McLellan, M.W., McKay, E.J., Carter, M.D., and Medlin, A.L., 1985, Geologic map of the Fence Lake SW quadrangle, Cibola and Catron counties, New Mexico: miscellaneous field studies map, MF-1750

Laughlin, A.W., Brookins, D.G., and Damon, P.E., 1976, Late-Cenozoic basaltic volcanism along the Jemez zone of New Mexico and Arizona: Geol. Soc. America Abs. with Programs, v.8, p. 598

Laughlin, A.W., Aldrich, M.J., Ander, M.E., Heiken, G.H., and Vaniman, D.T., 1982, tectonic setting and history of late-Cenozoic volcanism in west-central New Mexico in Albuquerque Country (J.A. Grambling and S.G. Wells, eds): New Mexico Geological Society Guidebook, 33th Field Conference, p. 279-284

McClellan, M., Haschke, L., Robertson, L., Carter, M.D., and Medlin, A., 1982, Fence Lake Formation (Tertiary), west-central New Mexico: New Mexico Geology, vol. 4, no.4., p. 53-55

McClellan, M., Haschke, L., Robertson, L., Carter, M.D., and Medlin, A., 1983, Middle Turonian and younger Cretaceous rocks, northern Salt Lake coal field, Cibola and Catron counties, New Mexico, in, Contributions to mid-Cretaceous paleontology and stratigraphy of New Mexico-part II (S.C. Hook, ed): New Mexico Bur. Mines and Min. Res. Circ. 185, p. 41-47

Molenaar, C.M., 1977, Stratigraphy and depositional history of upper Cretaceous rocks of the San Juan Basin area, New Mexico and Colorado, with a note on economic resources in San Juan Basin III (J.E. Fassett, ed): New Mexico Geological Society Guidebook, 28th Field Conference, p. 159-166

Myers, R.G., 1992, Geohydrology and potential hydrologic effects of surface coal mining of the San Augustine coal area and adjacent areas, Catron and Cibola counties, New Mexico in U.S. Geological Survey, Water-Resources Investigations Report 92-4004

Osborne, G.R. and Chapin, C.E., 1983, Nomenclature for Cenozoic rocks of northeast Mogollon-Datil volcanic field, New Mexico: New Mexico Bur. Mines and Min. Res. Strat. Chart 1

Roybal, G.H., 1982, Geology and coal resources of Tejana Mesa quadrangle: New Mexico Bur. Mines and Min. Res. Open-File Rept. 178, 35 pp.

Salt River Project, 1986, Fence Lake #l Mine, Catron County, New Mexico Coal Surface-Mining Permit Application: 5 vol.

San Juan Coal Company, 1989, San Juan Mine, San Juan County, New Mexico Coal Surface-Mining Permit Re-application: 7 vol.

Sauty, J.P., 1977, Interpretation of tracer tests by means of type curves--applications to uniform and radial flow, in Proceedings, Invitational Well-Testing Symposium, Lawrence Berkeley Laboratory Rept. LBL-7027, p. 82-90

Smith, G.A., 1988, Neogene synvolcanic and syntectonic sedimentation in central Washington: Geol.Soc.American Bull. vol. 100, no. 9, p. 1479-1492

Walton, W.C., 1989, Numerical Groundwater Modeling, Flow and Contaminant Migration: Lewis Publishers, 272 pp.

Weimer, R.J., 1976, Stratigraphy and tectonics of western coals, in 1976 Symposium on the Geology of Rocky Mountain Coal (D.K. Murray, ed): Colorado Geology Geological Survey, Denver, CO

SOCIOECONOMICS

Apache County Development and Community Services: Apache County Economic Profile. 1994.

Arizona Department of Commerce: Profile-Apache County Arizona. 1993.

Bureau of Business and Economic Research, University of New Mexico. 1994. County Profiles (Catron and Cibola Counties).

Cibola Communities Economic Development Foundation: Market and Community Profile. 1994.

New Mexico Planning and Development District 1: 1994 Factbook.

APPENDIX D

PROGRAMMATIC AGREEMENT REGARDING HISTORIC PROPERTIES

APPENDIX D

PROGRAMMATIC AGREEMENT AMONG THE BUREAU OF LAND MANAGEMENT, THE OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT, THE NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, REGARDING THE IDENTIFICATION, EVALUATION, AND TREATMENT OF HISTORIC PROPERTIES AFFECTED BY THE FENCE LAKE COAL PROJECT

WHEREAS, Section 106 of National Historical Preservation Act (NHPA) and its implementing regulations, "Protection of Historic Properties" (36 CFR part 800), require a Federal agency head with direct or indirect jurisdiction over a Federal, Federally assisted, or Federally permitted or approved undertaking to take into account the effects of the agency's undertaking on historic properties included in or eligible for the National Register and, prior to approval of an undertaking, to afford the Advisory Council on Historic Preservation (the Council), certain consulting parties, and other interested persons a reasonable opportunity to comment on the undertaking (the Section 106 review process); and

WHEREAS, the Salt River Project Agricultural Improvement and Power District (SRP) has acquired or leased certain lands near Fence Lake in Catron and Cibola Counties, New Mexico, and Apache County, Arizona, for the express purpose of conducting surface coal mining operations known as the Fence Lake Coal Project (the Project); and

WHEREAS, the parties to this agreement agree that the Project, if implemented, may affect historic properties; and

WHEREAS, the Bureau of Land Management (BLM) and the Office of Surface Mining Reclamation and Enforcement (OSM) have direct or indirect jurisdiction over the following Federal, Federally assisted, or Federally permitted or approved undertakings in conjunction with the Project:

1. Pursuant to the Mineral Leasing Act of 1920 (MLA), 30 U.S.C. §§ 181-287, and other laws, the Secretary Of The Interior, acting through BLM, has issued to SRP a Federal coal lease for the Project;

2. BLM has completed an Environmental Impact Statement for the Fence Lake Project Federal Coal Lease (the EIS) and determined that activities described in the EIS will have an effect on historic properties;

3. The Surface Mining Control and Reclamation Act of 1977 (SMCRA), 30 U.S.C. §§ 1201-1328, as implemented at 30 C.F.R. Chapter VII, requires the regulation, including permitting, of any surface coal mining operations at the Project by OSM or by a State regulatory authority if the State has, pursuant to SMCRA, assumed primacy for the regulation of such operations on lands within the State;

4. Pursuant to 30 C.F.R. § 773.11(a), SRP may not engage in or carry out surface coal mining operations at the Project unless SRP has first obtained a permit issued by OSM or an appropriate State regulatory authority;

5. As codified at 30 C.F.R. Part 931, New Mexico's Mining and Minerals Division (the New Mexico MMD) has, subject to OSM's oversight responsibilities at 30 C.F.R. Parts 842 and 843, assumed primacy for the regulation of surface coal mining operations on State and Federal lands in New Mexico, including the New Mexico portion of the Project;

6. Unless and until Arizona assumes primacy for the regulation of surface coal mining operations on State and Federal lands in Arizona, OSM is required by 30 C.F.R. Parts 736 and 740 to regulate such operations in Arizona, including the Arizona portion of the Project;

7. OSM is required by 30 C.F.R. Part 746 to prepare and submit to the Secretary, which responsibility the Secretary has in turn delegated to the Assistant Secretary, Land and Minerals Management, a decision document recommending approval, disapproval, or conditional approval of a mining plan for surface coal mining operations at the Project on lands containing leased Federal coal, which recommendation is to be based, in part, on the findings and recommendations of BLM with respect to a resource recovery and protection plan and other requirements of the Federal coal lease and the MLA (Mineral Leasing Act);

8. Pursuant to 30 C.F.R. § 746.11(a), SRP may not engage in or carry out surface coal mining operations at the Project on lands containing leased Federal coal until the Secretary has approved the mining plan; and

WHEREAS, BLM and OSM have, pursuant to 36 C.F.R. § 800.13, elected to fulfill their Section 106 review responsibilities for all undertakings of the Project through this programmatic agreement (the Agreement);

WHEREAS, BLM as lead federal agency for cultural compliance has, pursuant to 36 C.F.R. § 800.13(b), consulted with the Council, OSM, the New Mexico MMD, the New Mexico State Historic Preservation Officer (New Mexico SHPO), the Arizona State Historic Preservation Officer (Arizona SHPO), the New Mexico State Land Office (NMSLO), and the Arizona State Land Department (ASLD), with regard to the Agreement; and

WHEREAS, BLM and OSM have, pursuant to 36 C.F.R. § 800.13(c), consulted with Indian tribes in the region, and the Acoma Pueblo, Hopi Tribe, Navajo Nation, Ramah Navajo Band, and Zuni Pueblo have expressed concern for possible effects of the Project upon historic properties, including properties of traditional cultural value, and treatment and disposition of human remains, and BLM and OSM recognize these groups as interested tribes and has invited them to concur in the Agreement; and

WHEREAS, BLM has, pursuant to 36 C.F.R. § 800.13(c), consulted with SRP with regard to the Agreement and has invited SRP to concur in the Agreement; and

WHEREAS, ASLD owns a portion of the transportation corridor in Arizona which contains historic properties, has obligations pursuant to A.R.S. 41-864 to consult with the Arizona SHPO, and has been invited to concur in this Agreement; and

WHEREAS, the review procedures and definitions presented in APPENDIX A are applicable throughout the Agreement; and

WHEREAS, the Agreement shall apply to all activities authorized under the terms of the BLM coal lease, mining plans and permits, and modifications, renewals, and revisions of such plans and permits associated with the Project;

NOW, THEREFORE, the signatories to the Agreement agree that the Project shall be implemented in accordance with the following stipulations in order to take into account the effects of the Project on historic properties and in order to satisfy BLM's and OSM's Section 106 responsibilities for all aspects of the Project:

STIPULATIONS

BLM shall ensure that the following measures are carried out:

I. Identification of Historic Properties

a. BLM shall ensure that the area of potential effect of the Project including, but not necessarily limited to, the proposed mine area, transportation corridor, and any additional areas for facilities or activities related to the Project, shall be inventoried by SRP to identify properties eligible for or listed in the National Register. The inventory shall be completed under the supervision of persons meeting the professional qualifications standards provided in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation at 48 Fed. Reg. 44716-44742 (the Secretary's Standards), and in conformance with the Secretary's Standards for Identification at 48 Fed. Reg. 44720-44723.

b. Representatives of the Acoma Pueblo, Hopi Tribe, Navajo Nation, Ramah Navajo Band, and Zuni Pueblo shall be invited to participate in the inventories in order to help identify historic properties of traditional cultural value to Native Americans that may be affected by the proposed undertaking and to suggest protective measures.

c. SRP shall document the results of any completed inventory. SRP shall prepare a report (the inventory report) which shall include the results of the completed inventory, SRP's recommendations concerning eligibility of known and newly identified properties for inclusion in the National Register, and a summary of those eligibility recommendations.

d. At BLM's direction, SRP shall distribute copies of the inventory report by certified mail, with a cover letter provided by BLM, to all reviewing parties. The BLM cover letter shall request review and comments on said report or document. Each reviewing party shall have thirty (30) days from the date of receipt of BLM's written request to submit the party's comments directly to BLM.

e. If BLM determines that, with regard to the above-described inventory, further actions are necessary to identify historic properties or to determine eligibility, BLM in consultation with the appropriate SHPO shall ensure that appropriate testing or other actions are carried out by SRP and the results of these actions are added to the inventory report, either directly or as an addendum, as warranted.

f. Based on the information in the inventory report, and the results of any required testing, BLM shall formalize determinations of eligibility in a manner consistent with 36 C.F.R. § 800.4(c) and pertinent guidelines of the National Park Service, Council, and appropriate SHPOs. BLM will send a written request to each SHPO requesting their concurrence on the determinations of eligibility for properties within their State.

g. A SHPO shall be afforded thirty (30) days from the date of receipt of BLM's written request to review the eligibility recommendations and provide their comments to BLM on eligibility. If the SHPO disagrees with BLM's determination of eligibility for any given property, BLM will consult further with the SHPO to resolve the disagreement, or shall obtain a determination of eligibility from the Secretary in accordance with 36 C.F.R. § 800.4(c)(4). Following the review period, BLM, in consideration of all review comments received, shall inform SRP of any necessary revisions to the inventory report and SRP shall modify the report consistent with these revisions.

II. Treatment Plan

a. BLM shall ensure that SRP prepares and implements a comprehensive Treatment Plan that addresses the adverse effects of the Project on historic properties. BLM shall ensure that the Plan is reviewed as provided in Stipulation II.b., and shall ensure that the concerns of the reviewing parties are taken into account when finalizing the Treatment Plan. The plan shall identify historic properties inventoried under Stipulation I.a., the general nature of the effects to which historic properties will be subjected, and the general treatment strategies proposed to avoid, minimize, or mitigate the effects on all historic properties affected by the Project. The plan shall also identify general research questions; plans for monitoring; handling of discovery situations; general data needs; location, consideration and treatment of human remains and associated funerary objects, both from planned excavations as well as from sites not scheduled for data recovery; general field work strategies and analytical strategies related to the stated research goals; reporting requirements; and the curation and disposition of all artifactual materials, samples and records.

b. At BLM's direction, SRP shall distribute copies of the draft Treatment Plan with a BLM cover letter to all reviewing parties, by certified mail, requesting their review and comments on the Treatment Plan. Each reviewing party shall have thirty (30) days from the date of receipt of BLM's written request to submit to BLM the party's comments. BLM shall provide copies of any comments received to the appropriate SHPO. If any party fails to submit their comments to BLM within the review period, BLM may assume their acceptance of the draft Treatment Plan. If any reviewing party objects to the draft Treatment Plan, BLM shall consult with the objecting party to resolve the objection in accordance with Stipulation X. Following the review period, BLM, in consideration of all review comments received, shall, within 30 days, inform SRP of any necessary revisions to the draft Treatment Plan and SRP shall modify the plan consistent with these revisions. If SRP objects to any such revision, BLM shall consult with SRP to resolve the objection in accordance with Stipulation X.

c. BLM shall coordinate the review of the revised Treatment Plan and provide reviewing parties with twenty (20) days from receipt for review and comment. If a reviewing party fails to submit comments within the 20-day review period, BLM shall assume that party's acceptance of the revised plan. If a reviewing party has an objection to the revised plan, they shall notify BLM within the 20-day review period. The objection shall be specifically identified and the reasons for the objection clearly specified. BLM shall consult with the objecting party to resolve the objection. If the objection cannot be resolved, BLM shall act in accordance with Stipulation X.

d. When no objections to the Treatment Plan exist among the reviewing parties, or all objections have been resolved by the dispute resolution process under Stipulation X, SRP may propose to conduct specific measures for the mitigation of potential effects upon historic properties as specified in Stipulation IV.

e. Upon completion of each mitigation phase, as described in Stipulation IV, the BLM shall initiate consultation with the other consulting parties to determine if the Treatment Plan remains adequate for the next phase. If changes are required, a revised Treatment Plan shall be reviewed by all parties.

III. Consultation on Effect to Individual Properties

a. Consultations about effect on specific properties will be carried out in conjunction with each SMCRA permit review. Prior to permitting for each five-year disturbance area, BLM shall consult with OSM and, if appropriate, the New Mexico MMD, the New Mexico State Land Office, the Arizona State Land Department, and the appropriate SHPO about effects to historic properties within that disturbance area. BLM shall give consideration to the views of the interested tribes and SRP.

b. If an adverse effect on any historic properties is found, BLM shall consult with OSM and, if appropriate, the New Mexico MMD, the affected Tribe(s), the appropriate SHPO, the appropriate state land office or department, and SRP to seek ways to avoid or reduce the adverse effects on those properties.

c. Where BLM, OSM and, if appropriate, the New Mexico MMD, and the appropriate SHPO agree that adverse effects on the historic property or properties cannot be avoided, treatment of those effects shall be carried out as provided for in Stipulation IV. If these parties cannot agree that adverse effects on the property cannot be avoided or adequately treated, the dispute shall be resolved in accordance Stipulation X. BLM will formalize these determinations of effect with the appropriate SHPO.

IV. Comment on Data Recovery Plan(s)

a. Since actual data recovery will be phased over the life of the mine, the Treatment Plan shall serve as the basis for the development of phase-specific data recovery plans (DRPs). Data recovery shall be phased in consideration with any initial mining permit/plan approval and any subsequent permit/plan renewal or revision actions, but in any case data recovery will be satisfactorily completed in advance of any mining or mining related activities. SRP shall notify BLM of the proposed schedule for each data recovery phase and BLM will coordinate the review of the draft DRP for each phase with the reviewing parties. DRPs shall be based closely on the Treatment Plan, shall take previous research into consideration, and shall specify, at a minimum:

1. the historic properties to be affected and the nature of those effects;
2. the specific research questions to be addressed through data recovery, with an explanation of their relevance and importance;
3. the specific fieldwork and analytical strategies to be employed, with an explanation of their relevance to the research questions;
4. if appropriate, a proposed site-specific monitoring plan(s); and
5. a description of changes in the overall Treatment Plan applicable to the specific DRP.

b. At BLM's direction, SRP shall distribute copies of the draft DRP, with a BLM cover letter, to all reviewing parties by certified mail, requesting their review and comments on the DRP. Each reviewing party shall have thirty (30) days from the date of receipt of BLM's written request to submit to BLM the party's comments. BLM will coordinate the comments and forward them to SRP for revision of the DRP. The revised DRP shall be submitted to the reviewing parties for a 20-day review period.

c. If a reviewing party fails to submit comments within the review period, BLM shall assume that party has accepted the revised DRP. If a reviewing party has an objection to the revised DRP, they shall notify BLM within the review period. The objection must be specifically identified and the reasons for the objection clearly specified. BLM shall consult with the objecting party to resolve the objection. If the objection cannot be so resolved, the dispute shall be resolved under Stipulation X.

d. Once the reviewing parties approve a DRP, or once all disputes with regard to the DRP have been resolved under Stipulation X, BLM shall recommend to OSM and/or the New Mexico MMD that, in respect to historic properties, SRP's application, request for renewal, or revision of the mining permit or mining plan approval is in compliance with the Agreement. A provision that the DRP be satisfactorily completed in advance of mining and all mining related activities shall be a condition of the appropriate approval documents.

e. Upon completion of all work proposed in the approved data recovery plan, and at BLM's direction, SRP shall distribute copies of the data recovery report to appropriate reviewing parties by certified mail, with a BLM cover letter requesting their review and comments on the report. Each reviewing party shall have thirty (30) days from the date of receipt of BLM's written request to submit to BLM the party's comments. SRP shall ensure that the reports meet contemporary professional standards, including the Secretary's Standards, and BLM standards for data recovery. BLM shall, in consideration of the comments received, coordinate the finalization of all reports with SRP. A copy of all final reports shall be provided by SRP to the reviewing parties.

V. Changes in Disturbance Areas

a. If during the course of any surface coal mining operations at the Project OSM or MMD determines that a disturbance will affect a previously uninventoried area, BLM shall ensure that the area of potential effect of the uninventoried area is inventoried by SRP in consideration of any prior inventory and in accordance with the standards identified in Stipulation I.a. A report of the results of this inventory shall be submitted to BLM and the reviewing parties for review and comment, as set forth in Stipulation I.d. Where expedited review is desirable, SRP, after notifying BLM, may submit the inventory report and a specific DRP, if needed, for potential historic properties to BLM and the reviewing parties for concurrent review of inventory results, determinations of eligibility and effect, and treatment measures.

b. All parties shall have 30 days to review the inventory report and DRP and comment to BLM. BLM shall consult with the appropriate SHPO concerning adequacy of the inventory and concerning the eligibility of any potential historic properties and the nature of any effect to those properties. After the 30 day review period, and based on the comments of the reviewing parties, BLM shall, within 20 days, inform SRP of any necessary changes in the inventory report and DRP. BLM shall recommend to OSM and/or, when appropriate, the New Mexico MMD that SRP's supplemental DRP is approvable for the appropriate permitting action. If the consulting parties are unable to agree about these measures, they shall consult again to resolve the objection. The objection shall be specifically identified and the reasons for the objection clearly specified. If the objection cannot be resolved, BLM shall consult with the Council in accordance with Stipulation X. If any reviewing party fails to comment on the supplemental DRP within the review period, BLM shall assume that party accepts the DRP.

VI. Approval of a DRP

To ensure that a DRP is in accordance with the provisions of SMCRA or, as the case may be, the approved New Mexico State regulatory program as codified at 30 C.F.R. Part 931, the DRP shall not be implemented without the final, written approval of OSM and/or, if appropriate, the New Mexico MMD. OSM or the New Mexico MMD shall not approve the DRP if its implementation would violate SMCRA or the New Mexico State regulatory program.

VII. Properties Discovered During Implementation of an Undertaking

SRP shall include in the Treatment Plan a plan for handling historic properties discovered during implementation of the undertakings subject to the Agreement but not identified by the measures taken under Stipulation I. The plan shall not be inconsistent with the Agreement.

VIII. Human Remains

BLM shall consult with the interested Indian tribes and groups toward development of a Memorandum of Understanding (MOU) concerning the treatment and disposition of human remains, associated funerary objects, sacred objects, and objects of cultural patrimony. If human remains are encountered on Federal lands, BLM shall ensure that they are treated in accordance with the MOU among BLM, SRP, and the interested tribes. If human remains are encountered on State or private lands, SRP will ensure that they are also treated according to the MOU which shall be in conformance with the appropriate State burial protection laws (N.M.S.A. § 18-6-11.2; A.R.S. §§ 41-844 and 41-865). If an MOU cannot be reached or is not in place, BLM shall ensure that human remains, associated funerary objects, sacred objects, and objects of cultural patrimony on Federal lands are treated in accordance with the Native American Graves Protection Act and other applicable Federal legislation. In consultation with the appropriate SHPO and/or state agency, the New Mexico MMD and OSM for lands in New Mexico, and OSM for lands in Arizona, shall ensure that such remains on State and private lands are treated in accordance with the respective State laws.

IX. Curation

BLM shall ensure that all records and materials resulting from identification and data recovery efforts are curated in accordance with 36 C.F.R. Part 79. BLM shall also ensure that any materials recovered from private lands that are to be returned to their owners will be maintained in accordance with 36 C.F.R. Part 79 until their analysis is complete and they are returned according to the time frames established in the right-of-way agreements. Human remains and associated funerary objects found on private land are not private property and shall not be returned to the private land owners under the provisions of this Stipulation.

X. Dispute Resolution

Any dispute over issues arising under SMCRA or the New Mexico State regulatory program and any dispute involving a mining plan or permit shall, as appropriate, be referred to OSM and/or the New Mexico MMD.

As to disputes involving implementation of the Agreement and which are appropriate for resolution under this Stipulation, any recommendations or comments provided by the Council or other entity shall be understood to pertain only to the subject of the dispute; BLM's responsibility to carry out all actions under the Agreement that are not the subject of the dispute will remain unchanged.

a. Dispute Resolution: Among Reviewing Parties

Should any signatory of the Agreement object within thirty (30) days to any action taken pursuant to the Agreement, excluding any permitting/mining plan actions, BLM shall consult with the objecting party to resolve the objection. If, within 30 days, BLM determines that the objection cannot be resolved, BLM shall forward all documentation relevant to the dispute to the Council and the appropriate SHPO. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

1. Provide BLM with recommendations, which BLM will take into account in reaching a final decision regarding the dispute; or

2. Notify BLM that it will comment pursuant to 36 C.F.R. § 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by BLM in accordance with 36 C.F.R. § 800.6(c)(2).

b. Dispute Resolution: Interested Parties and Public Objections

At any time during implementation of the measures stipulated in the Agreement, should an objection to any such measure or its manner of implementation be raised by Interested Parties or a member of the public, BLM shall take the objection into account and consult as needed with the objecting party, the SHPO, or the Council to resolve the objection.

XI. Confidentiality

In recognition of the sensitive nature of information that may be obtained through research on historic properties, particularly those associated with traditional cultural values, the parties to the Agreement will, within the limits of the law, limit access to these materials.

XII. Amendments

Any signatory to the Agreement may request that it be amended, whereupon the signatories to the Agreement shall consult in accordance with 36 C.F.R. § 800.13 to consider such amendment.

XIII. Termination

Only BLM, OSM, the Council, or the SHPOs have the authority to terminate the Agreement. Termination is undertaken by providing thirty (30) days written notice, by certified mail, to the other principal parties, provided that the party desiring termination first consults with the other consulting parties in a reasonable and good faith effort to avoid termination. BLM shall notify the concurring parties concurrently of any terminating actions. In the event of a termination, OSM and/or BLM will comply with 36 C.F.R. §§ 800.4, 800.5, and 800.6 with regard to their undertakings covered by the Agreement.

XIV. Extensions of Time for Review Periods

Any party to the Agreement may send to BLM a written request for a reasonable extension (up to a maximum of 60 days) of any period of review identified in this Agreement and applicable to the requesting party which BLM may, in its discretion, grant or deny. To be considered by BLM, this request must be sent by certified mail and postmarked within the appropriate period of review for the requesting party.

BLM may on its own, without a request by any other party, extend any period of review identified in this Agreement, up to a maximum of 60 days, upon written notice of the same to the reviewing parties.

EXECUTION AND IMPLEMENTATION of the Agreement evidences that OSM and BLM have afforded the Council a reasonable opportunity to comment on the Project.

APPENDIX A

REVIEW PROCEDURES AND DEFINITIONS

I. Review Procedures

For the purpose of document review, BLM shall serve as the lead entity for distribution of plans and reports and as a clearinghouse for review comments. SRP may distribute the various plans and reports, however, BLM shall initiate document review and the establishment of time frames by means of a letter-request to reviewing parties. BLM will coordinate review comments and provide SRP with direction for finalizing plans and reports.

For activities affecting lands in Arizona, BLM Socorro Resource Area shall coordinate reviews with BLM Phoenix District Office, and ASLD as appropriate.

II. Definitions

a. Signatories are all entities signing the Agreement.

b. Consulting Parties for the Agreement are BLM, OSM, New Mexico SHPO, Arizona SHPO, and the Advisory Council on Historic Preservation.

c. Concurring Parties for the Agreement are Acoma Pueblo, the Arizona State Land Department, the Hopi Tribe, the Ramah Navajo Band, the Navajo Nation, SRP, and the Zuni Tribes.

d. Interested Parties for the Agreement are any other entities that have expressed interest in the Project, such as the New Mexico State Land Office and MMD, but are not signatories to the agreement.

e. Reviewing Parties for the Agreement are all entities named in this Appendix. Depending upon land status, it may not be necessary for all parties to review all documents. The New Mexico MMD and New Mexico SHPO will not normally be requested to review Project activities occurring in Arizona, and the Arizona SHPO will not be expected to review Project activities occurring in New Mexico. However, in cases involving overall Project concerns, such as the Treatment Plan, all reviewing parties will be asked to comment.

g. Appropriate SHPO for the Agreement is the New Mexico SHPO for Project activities on lands in the State of New Mexico and the Arizona SHPO for Project activities in the State of Arizona.

CONSULTING PARTY:

BUREAU OF LAND MANAGEMENT

By: Gilbert J Lucero

Date: 11-15-93

New Mexico State Director

CONSULTING PARTY:

ARIZONA STATE HISTORIC PRESERVATION OFFICER

By: James W. Garrison

Date: 11/23/93

CONSULTING PARTY:

OFFICE OF SURFACE MINING

By: Richard E. Dawes

Date: 11/22/93

Chief, Federal Programs Division

CONSULTING PARTY:

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: Robert D. Bush

Date: 12/27/93

Executive Director

CONSULTING PARTY:

NEW MEXICO STATE HISTORIC PRESERVATION OFFICER

By: Thomas W Merlan

Date: 11-29-93

CONCURRING PARTY:

ACOMA PUEBLO

By:

Date: 11/23/93

CONCURRING PARTY:

ARIZONA STATE LAND DEPARTMENT

By: M Hassell

Date: 11/18/93

CONCURRING PARTY:

SALT RIVER PROJECT AGRICULTURAL IMPROVEMENT AND POWER DISTRICT

By:

Date: 11-24-93

CONCURRING PARTY:

ZUNI PUEBLO

By: Joseph Dishta

Date: 11/8/93

THE HOPI TRIBE

Ferrell H. Secakuku
CHAIRMAN

Wayne Taylor Jr.
VICE-CHAIRMAN

WESTERN SUPPORT CENTER
96 FEB -5 PM12:35
OSMRE-WSC

February 02, 1996

96-02-06-01

Mr. Charles Carroll, Archaeologist
BUREAU OF LAND MANAGEMENT
Socorro Resource Area
198 Neel Avenue, N.W.
Socorro, New Mexico 87801

REF: 3400 (038) Cultural

Dear Mr. Carroll:

The Programmatic Agreement for the Fence Lake Project has been approved by the Hopi Tribe pursuant to resolution #H-110-95. Enclosed is a copy for your records.

You may contact our office at (520) 734-2244 or FAX (520) 734-2331, should you have any questions or concerns regarding the above matter. Your continued assistance is appreciated.

Sincerely,

Leigh Jenkins, Director
Hopi Cultural Preservation Office

ENCLOSURE

xc w/enclosures to the following:

Judy Brunson-Hadley, SRP
Lynne Sebastian, NMSHPO
Jim Garrison, AZSHPO
Foster Kirby, OSM
Jim O'Hara, NMMMD
Roger Anyon, ZUNI TRIBE
Gov. Shutiva, ACOMA TRIBE
Carol Gleichman, ACHP

P.O. BOX 123 — KYKOTSMOVI, ARIZONA — 86039 — (520) 734-2441

APPENDIX E

COMMENTS AND RESPONSES ON DRAFT SUPPLEMENTAL EIS

APPENDIX E

COMMENTS AND RESPONSES ON DRAFT SUPPLEMENTAL EIS

During the week beginning May 30, 1995, OSM held the following public meetings in Arizona and New Mexico to receive comments on the draft supplemental EIS:

- 7 p.m., May 30, 1995: Quemado High School, Quemado, New Mexico
- 7 p.m., May 31, 1995: St. Johns 4-H Community Center, St. Johns, Arizona
- 7 p.m., June 1, 1995: Best Western Gallup Inn, Gallup, New Mexico
- 7 p.m., June 2, 1995: City Council Chambers at City Hall, Grants, New Mexico
- 10 a.m., June 3, 1995: Pueblo Indian Cultural Center, Albuquerque, New Mexico

Representatives from OSM gave a brief presentation at the beginning of each meeting and then took comments from the public. OSM arranged for a representative from a stenographic service to be present at each of the five meetings to compile an official record of public comments. Total attendance at the five public comment meetings, based on meeting sign-up sheets, was 45 persons. OSM also received 21 comment letters, most of which were submitted during the formal public comment period that was open from April 28 until June 28, 1995.

An index follows that lists by exhibit number the written comments and oral testimony that were received by OSM (Note: No public comments were submitted at the public comment meetings held in St. Johns, Arizona and Gallup, New Mexico):

Exhibit — Page

1. Oral testimony at public meeting in Quemado, New Mexico E-7

2. Oral testimony at public meeting in Grants, New Mexico E-16

3. Oral testimony at public meeting in Albuquerque, New Mexico E-31

4. Letter from Donna S. Wieting, U.S. Dept. of Commerce E-45

5. Letter from Robert E. Gasser, Arizona State Historic Preservation Office E-46

6. FAX of memorandum from Charles Tippeconnic/William D. White, Bureau of Indian Affairs E-47

7. Letter from Stefan Verchinski E-48

8. Written statement from Mervyn Tilden E-49

Exhibit Page

9. Letter from Barbara Leonard, The Rio Grande Chapter of the Sierra Club E-51

10. Written statement from Ron D. Shutiva, Governor, Pueblo of Acoma E-52

11. Written statement from Stanley Paytiamo, Pueblo of Acoma E-53

12. Letter from John J. Marron E-55

13. Letter from Peter Galvin, Southwest Center for Biodiversity E-56

14. Letter from Arthur Mogilefsky E-59

15. Letter from Gary Carlson, Office of Commissioner of Public Lands, State of New Mexico E-60

16. Letter from Susan Diane, All Peoples Coalition E-61

17. Letter from Gedi Cibas, Environment Department, State of New Mexico E-62

18. Letter from Donald F. Eriacho, Governor, Pueblo of Zuni E-64

19. Letter from Laura Watchempino E-67

20. Memorandum from Jennifer Fowler-Propst, U.S. Fish & Wildlife Service E-69

21. Letter from A. Stanley Meiburg, U.S. Environmental Protection Agency E-70

22. Letter from Arthur Mogilesfky E-71

23. Letter from H. Paul Friesema, Center for Urban Affairs and Policy Research, Northwestern University E-72

24. Letter from Edward S. Syrjala E-72

Substantive comments received about the draft supplemental EIS have been coded by applicable response categories. The codes for response categories are as follows:

Code	Response Category	Page
Air	Climatology, Meteorology, and Air Quality	E-75
Geol	Geology and Topography	E-77
Soils	Soils	E-78
Hydro	Hydrology	E-79
Veg	Vegetation	E-88
Wild	Wildlife	E-90
Land	Land Use and Recreation	E-93
Esth	Esthetics	E-94
Soc	Socioeconomics	E-95
Cult	Cultural Resources	E-97
Trans	Transportation	E-104
Gen	General Comments	E-105

All of the comments that have been received about the draft supplemental EIS are reproduced in part 1 of this appendix. The comments have been identified by exhibit number, response category, and sequence. For example, the second comment on cultural resources in exhibit 10 is identified as "Cult 10-B."

The Agencies' responses to the comments about the draft supplemental EIS are given in part 2 of this appendix. The responses are listed under response categories. For example, the response to comment Cult 10-B can be found under "Responses to Comments on Cultural Resources (Cult)."

Revisions, deletions, and additions to the text of the draft supplemental EIS have been made to address concerns where appropriate.

Note: The transcriptions of oral testimony given at the public meetings do not include the presentations given by OSM representatives and begin with the public's comments.

Part 1

Oral Testimony and Written Comments

Exhibit - 1
(Public Meeting in Quemado, NM May 30, 1995)

COMMENTS FROM THE AUDIENCE

CHAIRMAN CLARK: The first name we have is Mr. Bill Candelaria.

MR. CANDELARIA: I don't really have all that much to say there. The reason I -- I am Bill Candelaria, by the way. Bill Candelaria. And I live here in Quemado. I'm a life-long resident of Quemado except for a 22-year stint with Uncle Sam's Navy. I

retired 26 years ago -- quote - unquote, I "retired" 26 years ago -- and came back home.

I am just here tonight to make sure that the process goes through.

I was curious. It seemed like people that were against this project here, the last meeting that I attended, weren't even from here, didn't make their livings here. And I really don't know where they came from.

GEN 1-A

I think it speaks well that we have so few people from Quemado here. I take it to mean that it's generally accepted that you guys are going to go through with the project.

GEN 1-B

I'd like to ask a question there.

Who seem to be the biggest opponents of this? If I may.

CHAIRMAN CLARK: "Opponents"?

MR. CANDELARIA: "Opponents". Yes.

CHAIRMAN CLARK: I am not sure that we would want to get into that, sir.

MR. CANDELARIA: OK.

CHAIRMAN CLARK: I think that you will find that in the final EIS your comments, along with everyone else's comments, will be published in the document itself. So there will be a comment and then a response. So you will find out who would be for it and who would be against it.

SOCIO ECON 1-A

MR. CANDELARIA: OK. I would like to go on record as saying that I'm completely in favor of the project, what with the local or this county's economy being under attack from loss of grazing rights, concerns for the spotted owl and the forest and various other organizations. This Gila Watch, for instance. These are all people that are trying to drive cattlemen out of business. The lumbermen are practically out of business. And we need this for our economy here. We kind of need to keep our kids home. There's nothing here for them otherwise.

And that's all I have to say. I appreciate the opportunity to be heard.

And once again, for the record, my wife and I wholly back the project.

CHAIRMAN CLARK: Thank you, sir.

MR. CANDELARIA: I am speaking for you. Aren't I, honey?

MRS. CANDELARIA: Yes!

(Laughter.)

CHAIRMAN CLARK: The next individual is Craig Crissinger.

MR. CRISSINGER: My name is Craig Crissinger,

and I am just a concerned resident here. I live locally here.

GEN 1-C

I just have basically one question. And what I'm interested in finding out is: Does SRP have plans to build a power generating plant either on the mine site or near the mine site in the future?

GEN 1-D

CHAIRMAN CLARK: Well, I think we can answer that.

The proposal does not do that. The coal would be burned at the Coronado Station.

MR. CRISSINGER: OK. In the future, could that be a possibility? Would the process have to start all over again to get the permitting for that to occur? Or could it be something that could be, say, ten years, 15 years down the road? Could that be added in? I don't know. In some way added into this project?

I don't know if I'm making any sense.

CHAIRMAN CLARK: Well, there are SRP representatives here. And you might want to talk to them. But to my knowledge, they don't have any kinds of plans.

If they wanted to do it, it depends on what they would want to do with the coal that was being proposed to be mined. If they want to mine additional coal, then they would have to get amended permits from

GEN 1-E

the State. And the Office of Surface Mining would also have to look at it.

But it would be more proper for SRP to answer that question after the official hearing, if that's OK with you.

MR. CRISSINGER: Well, could they answer it now? I mean, on the record. Would that be possible? Because it does affect -- I would think it would affect the mining project.

CHAIRMAN CLARK: We will go ahead and entertain that question.

Mr. Bob Barnard could answer that.

MR. BARNARD: Yes. I am Bob Barnard, manager of the Fence Lake Project.

As Bill said, the project as designed does not include a power plant. The coal is to be burned at Coronado.

We have no plans to build a plant at the mine site.

If someone afterwards came and decided they wanted to build one, they would have to go through whatever the plant siting process is in the state of New Mexico, which would include public comment. They would have to -- If we mined additional coal, we would have to amend the permit; and undoubtedly we

GEN 1-E

would go through this process, a similar process, again. But there are no plans to do that.

MR. CRISSINGER: OK. That's all I had to say.

MR. BLOCK: There is a good chance they would have to start again on another environmental impact statement process if that was going to be done.

There was one done for the Coronado Generating Station when that was opened.

GEN 1-F

MR. CRISSINGER: I wonder: Did that take ten years also? That permitting process?

MR. BLOCK: I don't know.

MR. CRISSINGER: I'm just curious!

MR. BLOCK: All right.

CHAIRMAN CLARK: This process did not take ten years, by the way. But thank you for your comments.

MR. CRISSINGER: Well, if it didn't take ten years, how long -- Well, it's still in the process, I realize. Didn't it start in '83? Didn't I hear that in the last meeting?

This is a minor point, actually. I mean, that's not my focus.

MR. BLOCK: I am not sure when the Fence Lake No. 1 Mine -- They had a test mine there. Was that '83?

MR. BARNARD: '87.

GEN 1-F

MR. BLOCK: '87. And then the original EIS was done in 1990. And we started on our process in July of last year on this document.

MR. CRISSINGER: Right.

MR. BLOCK: But the Salt River Project's plan for this whole project maybe is ten years.

MR. CRISSINGER: I think that's what I'm referring to. That's what I remember from the last meeting. Not the environmental impact process.

That's basically all I have to say.

CHAIRMAN CLARK: Thank you, sir.

MR. CRISSINGER: Thanks.

CHAIRMAN CLARK: OK. We are on the last person that has signed up. But if there is anyone else that would like to speak after this individual, feel free to. I think we have had one individual join us.

OK. The next, and last, speaker is Mr. Mervyn Tilden.

MR. TILDEN: I'd like to say "Good evening" to everybody here in the room.

My name is Mervyn Tilden. I am not from here, as Mr. Candelaria said. I am not here to destroy the economy, either.

I am here on behalf of three organizations. One, the closest one, being Zuni Mountain

Coalition. I sit on the Board of Directors.

I am also here on behalf of Dine' Citizens Against Ruining Our Environment.

I am also here on behalf of the Big Mountain Sovereign Indian Nation People.

And I am here representing myself, in my own capacity as a petitioner to the OSM in the case of the Amcord Amcoal mine site about five and a half miles southwest of my home.

My concerns tonight about the Draft Supplemental Impact Statement, the Proposed Mining Plan and Permit Application for the Fence Lake Mine in Catron and Cibola Counties in New Mexico and Apache County, Arizona are such that the Fence Lake Project, the FLP, its site facilities and the 44-mile railroad corridor would be associated with the proposed mine -- this is going to be 14 miles north of your town, Quemado -- the concerns that we spoke about in the last meeting, and all across the Navajo Reservation, have much to do with the Office of Surface Mining Reclamation and Enforcement.

GEN 1-G

The no action alternative in the Draft Supplemental EIS is viable and reasonable, and it should be reopened for further detailed analysis.

The Secretary of the Interior, Bruce

GEN 1-G

Babbitt, should not approve the life-of-mine mining plan if this is not the case.

GEN 1-H and CULT 1-A

The Department of the Interior has a trust responsibility to all Native American tribes and everything that impacts them culturally, spiritually, physically and otherwise.

AIR QUAL 1-A

TOPO GEOL 1-A

HYDRO 1-A

VEG 1-A and WILD 1-A

SOCIO ECON 1-B

In the summary of Alternative 1, on Pages vii and viii in the Draft Supplemental EIS, some of the impacts of the proposed FLP will include a degradation of air quality and visibility. The FLP will alter the topography and geology in the mining area. It will also impact surface and groundwater quality and quantity, including that of the Zuni Salt Lake. It will impact grassland vegetative communities and general wildlife species' diversities and populations. It will cause the loss of high-quality, relatively dense, pinon, juniper and gramma habitats. Local employment will be short term, and the economic benefits will also be short term. The impact will affect this area locally and regionally and the land use during this life of the mine will also be impacted. The FLP will have moderate to major impacts, some of which will be long term and/or irreversible and irretrievable, on indigenous cultural resources.

CULT 1-B

In the Draft Supplemental EIS Sections

3-28 and 4-39, it states clearly that Native American cultures, the cultural resources will suffer the most damage. Most will be desecrated forever, even after mitigation and reclamation.

CULT 1-C

The salt-gathering trails, as Mr. Clark mentioned, particularly the Acoma Trail, and specific cultural sites will have major impacts.

CULT 1-D

The greatest number of archeological sites identified will be impacted within the first five years. There have been 595 sites that have been identified. 536 are in the proposed mine area, 59 will be along the railroad corridor. Within the FLP area, 60 percent of all archeological sites will be disturbed by mining and construction activities. Most sites in the railroad corridor will be impacted.

WILD 1-B

There are nesting raptors. There are golden eagles, prairie falcons, red-tailed hawks, kestrels, et cetera. These raptors are sacred to Native Americans, and their sensitive breeding periods will be disrupted.

CULT 1-E

The Zuni Salt Lake neutral zone, the Cerro Prieta, which is a volcano, which is also a sacred site to Native Americans, the Acoma White Rock and seven trails within the FLP area will be disrupted, disturbed and desecrated.

CULT 1-F

Most, if not all, burial sites that are desecrated will be Anasazi, our ancestors.

In the Council on Environmental Quality Regulations at 40 CFR 1508, 27(b)(4) and (8) specify the above to be considered, since they are significant impacts.

GEN 1-I (see Appen. D)

When developed and executed, the programmatic agreement which provides the various federal and state agencies and Indian tribes with the mechanism for consideration of cultural resources, consultation and dispute resolution, and the human burial memorandum of agreement, is public record and it should be released to all interested parties.

GEN 1-J (see Chap. 5-5)

Executive Order 12898, signed by President William Clinton on February 11, 1994 on environmental justice is required to be implemented in all federal department and agency actions that affect minority and low income communities.

Quemado is a low income community. And it will be negatively impacted.

People of color and indigenous communities.

GEN 1-K

There are not many Navajos that live around here, Acomas, or Hopis. But there are some. There should be a translation of this Draft Supplemental EIS given to them.

GEN 1-L

The Office of Surface Mining Reclamation and Enforcement is a federal agency; therefore, it falls under these requirements of Executive Order 12898. And because they are federal leaseholds that are in the FLP area, it makes it more important that the executive order on environmental justice be addressed.

GEN 1-M

Also, Secretary of the Interior Bruce Babbitt's memo signed on August 17th, 1994 to fully support the Executive Order 12898 on environmental justice must also be incorporated in the final Environment Impact Statement.

GEN 1-N

Because the Office of Surface Mine Reclamation and Enforcement is the lead agency in the preparation of the final EIS, the public issue of OSM's involvement in and around the Black Mesa and Kayenta Mines, railroads and unpermitted slurry line, the Northern New Mexico Navajo and Burnham Mines, McKinley County, Pittsburgh and Midway Mines and Amcord's Amcoal Mines need to be reopened and further analyzed in detail and incorporated in the final Environmental Impact Statement.

GEN 1-O

The lack of enforcement of the 1977 Surface Mining Control and Reclamation Act on Navajo

GEN 1-O

land by the Office of Surface Mining must be thoroughly reviewed and considered.

GEN 1-P

Also, the congressional investigation of OSM initiated in October of 1994 must be incorporated in the final EIS. The Office of Surface Mining's reorganization effort that was approved by congress in January of 1995 lacks real public participation in its

GEN 1-Q

development and implementation, and there has been no adequate and necessary public education and notice of the FLP and comment meetings.

GEN 1-R

The Office of Surface Mining Director Robert Uram's involvement with Amcord's Amcoal Mine as its representative attorney prior to his congressional confirmation is indeed a conflict of interest. If congress had known this information, if it had this knowledge, Mr. Uram would not have been confirmed.

OSM Director Robert Uram at an accountability session in Faubush, Kentucky on November 5th, 1994 promised to visit Black Mesa "when the mud season is over". But he canceled a set meeting with Black Mesa residents on April 22nd, 1995. This is clearly a breach of trust, a warning to residents and nations to be impacted by the FLP.

GEN 1-S

I would like to stress this to those concerned about outsider involvement. The reason why I

am here is to let you know that the Office of Surface Mining has failed its trust responsibility to the Navajo Nation, to the residents of the Navajo Nation who live on and near these mine sites. The Nation's water has been poisoned, the land has been ripped apart and desecrated, the air becoming polluted. We have lost thousands upon thousands of acres of land that contained food and medicinal gathering plants, sacred sites, burial sites, umbilical cord sites. And not one thing has been done by the Office of Surface Mining to correct this, to alleviate it, to try and make this thing easier upon our lives.

CULT 1-G

And what do you think is going to happen to you? You are only going to be 12 miles from this mine site. And I have to tell you that there are a lot of human remains here in this area, and the Draft Supplemental EIS I would say is wrong. The elders of our Nation, the Hopi Nation and the Acoma Nation, I have talked with them, and they clearly say that there's a lot more than what is in there. And if they are willing to allow this to happen, then I will tell you that our past as a people is going to be destroyed forever in many of these cases because most of the impacts will be major, irretrievable. The damage will be done. And if they can destroy our past, then look .

CULT 1-G

at the devastation that has happened on Navajo land. And you will find out that they will certainly allow

HYDRO 1-B & AIR QUAL 1-B

your future to be destroyed. Your water, your air, your land is going to be desecrated as well.

Thank you very much.

CHAIRMAN CLARK: Thank you, Mr. Tilden.

MR. TILDEN: I'd like to submit these copies for the record.

CHAIRMAN CLARK: All right. We will accept them. Thank you.

(Mr. Tilden's remarks were incorporated into the record and marked Exhibit No. 1.)

MR. TILDEN: I'd like to also get a copy here.

CHAIRMAN CLARK: Go ahead. Take one of each.

MR. TILDEN: This is for the people.

CHAIRMAN CLARK: If you need another copy, you are certainly welcome to it.

MR. TILDEN: Thank you.

CHAIRMAN CLARK: That concludes the people that have signed up.

If there is anyone else that would like to speak -- Yes, sir. You can come forward and speak.

And before you leave, sir, if you could sign in and put down your address, we would appreciate

it.

MR. BARTON: My name is Jim Barton, B-a-r-t-o-n, and I'm a resident of this area.

GEN 1-T

I'd just like to express a few concerns that I've thought about. One, this being a real rural area and all the generating plants going up to the west of us and the wind flow being towards this unpopulated area, I just wonder if there's any particular -- The thought has run through my mind that, this being an unpopulated area, the reason the coal mines, or the generating plants are going up to the east -- or to the west of us. Very few people in an area can't make a very loud squawk. That was just a concern that I've had over the last few years.

SOCIO ECON 1-C

And I would like to say something else to represent another part of the community: That people live in this area not for money, they live in the area for peace of mind and whatnot. And I would like to say that if Salt River does mine -- I have done work with them, and I don't think a better company could come in, to my knowledge, to do this work. But I'd just like to express my concerns over my children coming to a school without drug problems and other crime problems and whatnot. And I think we will see some of that if a lot of jobs come into the area. It is nice for our kids to

SOCIO
ECON
1-C

have jobs, but it's nice for the other part of the people that live here to appreciate values other than the value of money. And I think that's why a lot of people live here.

Thank you.

CHAIRMAN CLARK: Thank you, sir.

Would anyone also like to speak tonight?

(No response.)

CHAIRMAN CLARK: We can make it a hundred percent for everyone here, if you want!

(Laughter.)

CHAIRMAN CLARK: OK. With that, this public meeting is closed. And like I mentioned before we got started, Bob and myself and Monte will stay around to answer any questions.

(The public meeting concluded at 8:00 p.m., Mountain Daylight Time, May 30, 1995.)

- - -

Exhibit - 2
(Public Meeting in Grants, NM June 2, 1995)

GOVERNOR RON SHUTIVA: Good evening. Thank you, Mr. Clark, and thank you, especially my tribal members that have shown up. I got in my four-wheel jet and flew from Santa Fe. I was in Santa Fe this afternoon at about 4:20 and cruised in here. I'm glad that no state cop was on the road. But I do have a written statement here. And I do know that you all can read, and I do have copies here if any of the other members in the audience would like to have a copy of it.

But it's indeed, again, a privilege, you might say, to make some comments tonight. Why I say that, because I

GEN 2-A

look in this manual here, and I look at the team of people that were dealing with this, and do I not see any Native American that was involved in dealing with the EIS. I have got everybody else that's listed in here that have their degrees, their doctorates, their masters in all these different areas, and yet I do not see a Native American listed on this particular listing of those people that are involved.

Why I say that is because the nonIndians never would feel the encroachment of some of these concerns that we have because they are not Native Americans.

GEN 2-B

You know we have, from the Pueblo in previous administrations, my predecessors, that have been in these positions as governors, have provided comments previous to this meeting. Meetings with BLM, public hearings, on this Salt River Project, and we continue to express our concerns and our need, and it has been a challenge to even have some of these needs and concerns addressed.

CULT 2-A

I guess many times because we are asset rich, because we are culturally rich, yet we are cash poor. And it seems like money talks all the time when you have that green stuff. And big companies as such that are proposing to do these things, it's money that is talking. There seems to be never an addressment of the major concerns that we have from Acoma, the archeological resource disturbance that

CULT 2-A

this project is going to create, impacts on our traditional cultural properties, damage to our tradition natural pilgrimage trails, and in many areas the impacts of our

HYDRO 2-A

current and aboriginal water resources and rights that we have, and especially the total mining effects that it's going to have on the Zuni Salt Lake.

I say these things because our activities and

CULT 2-B

religion, our culture go back many, many years. Even some of those sites where our ancient people have lived, we at Acoma still consider ourselves caretakers of some of these sites, the burial areas, and some of these remains that are there that are dear to us. That's the reason why I state that you nonIndians would never have that feeling that it has in the heart and in our soul of having these disturbance, and we cannot put a price tag on that particular activity.

CULT 2-C

You know, there's a lot of activity that's going to be happening over there with the development, the railroad construction, and it's going to have a lot of destruction of the values that we hold dearly. It's going to create a lot of disturbance, yes, even though that we are looking at a Memorandum of Agreement, but yet, you can never replace that disturbance that is going to be caused by the development and the construction of this activity and this project.

Even though we recommend that there be a certain

CULT 2-D

set-aside of some 40 acres for reburial of some of these areas, it seems like we are always reacting to a lot of things. There's a lot of proactiveness that we need to take part in. But because we are cash poor, maybe that proactiveness cannot be there.

GEN 2-C

A lot of the areas that Dr. Block has mentioned as far as the impact summaries from the lowest to the major, we consider all these major. We don't consider the water quality at the Zuni Salt Lake as the lowest impact. Like I stated, you all will not ever understand how our practices and the things that we practice at our religious sites are. And that's the reason why we consider them to be major impact on a lot of these different areas.

GEN 2-D

We talk about air quality being a minor impact. It is a major impact. Everything that we do, everything that is happening is a major impact.

I sit on the Grand Canyon Visibilities Transit Commission. Even the impacts that that particular area has, has a definite impact directly or indirectly to all of our Indian nations. Policies, procedures, regulations that that particular commission is going to set aside is going to have an impact on a lot of different areas.

TRANS 2-A & AIR QUAL 2-A

We talk about the transportation being a moderate impact, yet, we don't have, I guess, a means of having some sort of air quality monitoring that needs to be put in place

and
CULT
2-E

there. Why? Because fragments of that disturbance is going to be traveling to that Zuni Salt Lake, that place that is so dear to us, because our beliefs and our traditional religious practices, and even the, our activities of our pilgrimages to the Salt Lake and to the shrines of the proposed project is going to be drastically impacted. Our people have walked these lands, have traveled these lands for centuries. And yet, within our prayers that we have as Native American people, we express ourselves in the light of all mankind and put our needs and concerns as Native American people as at the very last.

HYDRO
2-B
and
CULT
2-F

We take a look at the water situation, even though the study says that there isn't going to be that much impact. Water is so dear to us, and water should be so dear to everybody else. If it's not for moisture there would be no living activity on this earth. That's the reason why our native people are always praying for that moisture, for that rain. And indirectly a lot of these areas are disturbed.

GEN
2-E

There's a lot that can be said, and there's a lot that still needs to be said. I recommend that we have somebody on this study, this team, that is Native American. You know, even though that there's a lot of regulations, and I usually refer to it as white tape -- a lot of people call it red tape. I call it white tape. Even though a lot of these regulations are put in place, yet there's always some

CULT
2-G

sort of leeway that people go around and can say, "Well, it doesn't matter." Why I say this is because some of these pilgrimage trails have been identified as eligible for listing on the National Register for Historical Places.

CULT
2-H
and
WILD
2-A

You know, we take a lot of our religion into, really into our souls and into our hearts. We talk about endangered species. We talk about the eagle, and the nesting sites that are going to be disturbed, might even be gotten rid of. We hold that bird sacred to our cultural and religious observations, that we do the usage of those feathers that we do in our prayer of the burial of not only of Acoma but the whole earth.

GEN
2-F

You know, Grandpa used to talk to us that for every disturbance that we cause there is a reaction. Just take a look back in history when man first walked onto the moon. What kind of unbalance did that create? Not only mother earth, but nature. And I guess that's the reason why we strongly disagree, that the need for a nonuse value study and its elimination, we strongly disagree to that. We want it to be reinstated into those studies.

GEN
2-G

You know, it's kind of disheartening to have OSM already do those preferred alternatives and approval of this project. I wish people in that office were Native Americans so they could understand the total impact that it has on us as Native American people. No matter what is short term or

GEN
2-H

long term, it is an indefinite term that we're going to be facing because once you disturb that land, it is not going to be that same soil that my people have traveled on for many years. It is going to have an impact in some sorts.

I am not a prophet of any sort. But I am pretty sure that there would be some sort of an impact whether it be negative or positive if this project goes through. Thank you very much.

MR. CLARK: Thank you, Governor, for those comments.

The Governor gave us a letter dated June 2nd, 1995, signed by the Governor. It will be entered as Exhibit 3.

The next individual that has been, has requested to speak this evening is Stanley -- and I'm not sure about the last name.

MR. RON SHUTIVA: Paytiamo.

MR. STANLEY PAYTIAMO: Good evening. I have my statement. I won't read the whole thing. I'll just mention a few.

My name is Stanley Paytiamo, Chairman of the Water Commission, and also have one of our Commissioners here present, Commissioner Jimmie Torivio, and I hope the others will come in later. They are all scheduled to come.

Mr. Chairman and members of the committee, the Pueblo of Acoma Water Commission appreciates the opportunity

CULT
2-I
and
HYDRO
2-C

to appear before you to discuss the project at hand. Our concerns cover archeological resources disturbance, impacts on traditional culture properties, opposing to the damage of our pilgrimage trails, impacts on water resources, especially any mining affects on Zuni Salt Lake. To the Acomas, today Acomas believe in those traditional religious practices and still travel to pilgrimage several times a year to Salt Lake, and to other shrines within the Fence Lake area, and to all other shrines in the four directions, including the west.

HYDRO
2-D

The Zuni Salt Lake must not be harmed in its quantity and quality of surface and ground water resources. We insist that the quantity and quality of the water be carefully monitored and tested on a regular basis. We urge that monitoring wells be developed nearby. We know that

AIR
QUAL
2-B

dust from the mining activities and the transportation from the vehicles create a lot of dust.

You know, our government has made a lot of mistakes. And those of us are part of the government because we are American citizens. One of the mistakes that we made was the dropping of the bottom in the Pacific. And now we have to suffer. Now we have to go back and clean up all the mess of all the hazardous material that we Have now. And I think that sometimes we do things all because of the bottom line, the profits. That is all we care for is the

GEN 2-I

profits. We're not concerned about the health affects these are going to have.

And in closing, I want to mention a few environmental impacts from coal mining. The environmental impacts. In 1978, a special advisory committee on coal mining reported the dangers of increased coal mining and production to the Department of Health, Education, and Welfare. And they listed some of the following problems and I will just mention a few.

GEOL TOPO 2-A

That the coal mining releases low-level radiation which also has a cumulative effect.

GEN 2-J

And the specific environmental impacts of coal mining, coal strip-mining can be severe if there is not an adequate plan in place to reclaim the land. Not only is the land and soil disturbed, but there are also signifcant impacts on the water system brought on by the strip mining. Some principal affects on the water system that may result from these manages are -- and I'll just name a few again.

HYDRO 2-E

One, changes in vegetation species that may change water use.

Changes in stream flow that may affect volume and quality.

Contamination of groundwater aquifers.

Changes in the water quality due to mining may result in any one or combination of several detrimental

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effects. These are: harm to human health, harm to livestock or crops, harm to fish and wildlife, taste and appearance problems.

GEN 2-K

I want to thank you for this opportunity. I want to close by reading a small poem I think that says all the things that I wanted to say about culture, because there's a lot of things that need to be said, but I don't want to be giving out any of my culture secrets. But I think this one little poem Grandpa has said these statements. And those of us that are Native Americans receive these teachings. The title of this poem is, Mother Earth Is Sacred.

> "As an Indian person, my view of the world is that Mother Earth is sacred. It is difficult for me to use the term `environment,' the term `ecology.' To me it's Mother Earth and she is sacred.
>
> If she is not healthy, if the beings sustaining from her, the people, the animals, the wildlife, the water, the air, everything that belongs to Mother Earth, if that is not protected, if that is not taken care of in the proper way, with respect, well, what are we here for then?
>
> Mother Earth is sacred."

Thank you.

MR. CLARK: Thank you, Mr. Paytiamo.

Mr. Paytiamo, submitted written comments dated June 2nd, 1995. It will be marked as Exhibit 4 into the record.

The next individual that requested to give us comments this evening is Mr. James Williams.

SOCIO ECON 2-A

MR. JAMES WILLIAMS: Well, I don't have no written statement. But I believe that this coal mine would be good for the whole area. We need jobs.

The man from here mentioned cash. The young people, we need jobs in this area. I believe we can do this with a minimal amount of impact.

TRANS 2-B

One statement that he did make that I was thinking about is the railroad. He mention 250-foot wide right-of-way. With trucks, you could go with a 30-foot wide right-of-way, cutting your, your land, tearing your land up.

SOCIO ECON 2-B

And I feel that this is a very good project for the young people. We're talking 28 years. I won't be working 28 years, from now but my kids will. And every dollar that goes out in a paycheck will affect everybody here. He gets it over in his gambling bingo halls. Everybody else could benefit from them paychecks coming back out.

GEN 2-L and HYDRO 2-F

And the concerns they have with the water, I will agree. Water is a very major concern, not a minor one.

And I -- heritagewise, I don't know that much about the Salt Lake. But water is very important to this country.

HYDRO 2-G

We're a very dry country. If we don't get water, we can't do nothing. And I believe that maybe a little more study on the lake needs to be done to -- you know, as I say, it's not minor. It's a very important issue.

SOCIO ECON 2-C and CULT 2-J

But I believe jobs has got to be an important issue, too, for our young people. You know, we have got to have some sacrifice if we're going to have some kind of a progress. That don't mean tearing up all your archeological sites, but we have got, you know, we can still preserve that and still do it.

GEN 2-M

We have one coal operation in Los Angeles, downtown Los Angeles, right next to a major hospital, totally dust free. You can go through it with a white pair of coveralls and gloves. If they have it in California, why can't we have it here?

SOCIO ECON 2-D

That's about all I have to say, because we need, we need the mine, and we need the jobs for our young people.

Thank you.

MR. CLARK: Thank you, Mr. Williams.

Okay. Our next speaker I believe, is Mike Torivio.

MR. MIKE TORIVIO: Torivio.

MR. CLARK: Torivio.

MR. MIKE TORIVIO: I would like to introduce myself. My name is Mike Torivio, and I'm from the Pueblo of Acoma, and I'm with the Antelope Clan. And I'm here

GEN 2-N

representing my clan. Unfortunately, my uncles weren't able to make it out here tonight. They had some other important engagements, so I'm here to represent them.

On this project here, I -- whatever the governor said here, I totally agree with his speech there. And I support him. And I'm pretty sure all the head kiva leaders support the governor, because this is our sacred land and it's been here for hundreds of years. We have taken care of the lake, and that's our job, to take care of the lake. And I'm one of the newer leaders coming up and learning all this, and this thing goes back hundreds of years and before you and I were even born, or before you were born, this was in effect. And to destroy this is not right to do this. For my own comment. And yes, jobs is good, you know, for everybody, but to destroy something like this for our own use, it doesn't weigh out. The money doesn't weigh out how much history you are going to tear apart from our pueblo, or the other pueblos, like Zuni, Hopi. You can ask them that and they would agree to what we say. You're going to tear. tear that from us. It's not right to do that.

And I know money talks. Money feeds everybody. Money clothes us and everything. But there's other ways to make money.

That's all I have to say right now.

MR. CLARK: Thank you, Mr. Torivio.

Our next speaker is Mr. Ernest Vallo.

GEN 2-O

MR. ERNEST VALLO: Good evening, members of the tribe, the panel, Chairman. Thank you for giving us the this opportunity to express our feelings about the coal mine. And I, too, am in support. And Stanley mentioned about the, the bomb that was dropped over in Nagasaki and Hiroshima. And the, I guess the production that developed was in uranium mines back up in this area here, and much of it we're still suffering today from that event, and some of our pueblos have passed away because of much of the radiation that they have taken in.

And this gentleman here mentioned about money, yes. Once when the mines went, there's nothing really much left here in Grants. The bombs that were dropped over there in Nagasaki and Hiroshima back in 1943, devastated, and again, as Mr. Paytiamo mentioned that we're still cleaning up.

GEN 2-P

But if this mine down here, coal mine, could be limited to where it cannot be tore up so much. We as Indian people always look at, as an environment being our life, the sun, the moon, the earth, the water, the clouds, the rain. This is what we always prayed to. And from my opinion I would ask the coal mines, the Salt River or Fence Lake mines, to be as limited, to be very, very careful how that's done down there.

It's been mentioned our pilgrimage trail. Long

CULT 2-K

time ago we used to walk down there when I was in my young days, I was about 5 years old, I made that trip myself, on that trip. And I can't remember, being 5 years old, it's very hard to remember the trail at that time. And we share some of these, this environment, our pilgrimages, and also our archeological sites.

And recently I have been put on the Native American Advisory Committee in Crow Canyon, Cortez, Colorado, in the same regards, is to answer some of our concerns because of the people who do research up there. And again based on those conditions, our archeological sites where our ancestors have originally come from, who came here.

So those are my concerns that I wanted to, with my closing comments I would like to advise the mining reclamation to look at very, very, seriously, what has been brought to the table tonight, our concerns. I don't have a written statement and -- but I support the statements that was made by our tribal leaders here, and I thank again for being allowed to give my opinion here the way, what I feel about, about the mines. And I thank you very much.

MR. CLARK: Thank you, Mr. Vallo.

Our next speaker is Fidel Lorenzo.

MR. FIDEL LORENZO: (Untranslated words spoken in a Native American dialect.)

Good evening, first of all, to the panel, and also

to our guests here from the local community. I just wanted to express our -- in our way of life, we always go back and make sure that we greet our leaders, our elders, to make sure everybody got home all right from work or whatever. And that's basically what I expressed in our own traditions.

And basically, as I mentioned earlier at an earlier meeting down at the pueblo offices, I had a list of 40 questions, and I only got, like, 10 answered. But going on that, first of all, the statements on positions that both our Governor Shutiva, and also Stanley Paytiamo, who is also the Chairman of the Acoma Water Rights Commission stated we wholeheartedly support.

My name is -- I better go back and introduce myself. My name is Fidel Lorenzo from the Acoma Water Rights Office.

HYDRO 2-H

And basically one of the things that I think that needs to be reiterated is again, the great importance that is placed upon the water resources that we have here in the Southwest. It's such of great importance. If you will look at Albuquerque and all the studies that they are doing in being able to, trying to find sources of water to supply the city because it's a growing city, and the same way had in the Four Corners region, Santa Fe, Las Cruces, because again, like the gentleman stated earlier, we have very

HYDRO 2-H

little of it here, very limited supplies. And I guess, sooner or later we're going to get caught up in the same dilemma that California is being placed in having to import water as their only source.

HYDRO 2-I

And as culturally significant to the pueblo here and to the six other tribes that are involved in being able to make comments on SRP, again, we go back to the quality of the water. You know, what is going to be the quality of the water at the season of the mines. It's something that I think earlier when I asked the question down at the tribal offices today, currently were only assumptions as to the mitigating circumstances as far as fault lines, as far as direction of water flow, hydrological, complete hydrological studies as in correlation with geological studies within the area and, I think that's probably one of the biggest things that needs to be looked at in the more detailed way as far as studies is concerned.

CULT 2-L

And, probably one of the biggest things that I think all of my tribal members have brought up is the fact of the culture and religious significance that we have in that area. I'll go back to the question I asked earlier also, about the mediation or remediation, also, of the Acoma trail. And I think one thing that hasn't been addressed, that I'll address that I think should be addressed is the, quote, unquote, "compensation" of the, of what's going to be

destroyed here that we hold significant to our religious and our cultural lives.

CULT 2-M

I think somewhere, several meetings back that I attended, several of my tribal members who attended the same meeting were asked this very same question. How do you put a value on religious and cultural obligations that we have. And for us, in being able to practice what we do, you know, it's hard. And how is it going to be viewed from the outside sources, from these agencies that are involved with SRP, and also from the mining companies? As far as being able to think about compensation, because, again, as our governor stated, Governor Shutiva stated, we have used this historically for eons.

SOCIO ECON 2-E

And I guess I should go back in being able to say when people talk about Acoma or Sky City and its significant economic impacts that it has within the local community, you know, it's something, you know, that also needs to be considered. You know, even though we're sitting, situated far away from the proposed mining area, basically who we are, you know, plays a significant part in the area. You know, it's something that has to be addressed.

VEG 2-A and WILD 2-B

And I asked earlier also, one of my questions was the regulatory agencies as far as mitigation and remediation of the wildlife, the fauna, the flora that's there, and the core group team that's involved in it. And I agree with

GEN 2-Q

Governor Shutiva when he says what about the Native Americans? I mean, just as much he had mentioned about all the people that are on there holding doctorates, MAs, BAs, whatever, what have you. We have the same qualified people there at the pueblo, and in many of these pueblos that surround us, and the surrounding area within the proposed mine area. You know, I wholeheartedly agree that there should be some Native American representation within that core group, whether it's with the final EIS or with any remediation or mediation core group that is going to be established.

SOCIO ECON 2-F

Now I think one of the biggest things that we also are faced with currently at the pueblo and in the many of the Native American communities within the SRP project, and it's something that one of our local people here alluded to, is the economics of it. And, you know, it's something that we're all faced with is the economic dilemma of it.

He mentioned something about the youth and the young people, and being able to look at what's going to be there in the future. And just as much I think the pueblo is faced with the same situation. You know, how are we going to provide for the future of our youth, those who are out there attending universities and colleges. How are we going to provide them jobs, just as much as it is here within the local Grants-Milan communities. How do we provide jobs for

all of them, you know.

SOCIO ECON 2-G

And I can probably assume that when the uranium mining operations ceased, we knew the affects that it had, not only here in Grants, in Milan and San Rafael, Ambrosia, but also within the local pueblos, because probably 80 percent of the populace were economically served at the mining communities within those projects. But it's just as much a dilemma for us to weigh those certain economic, you know, goals as, you know, how are we going to benefit, and how is the local communities going to benefit. As far as being able to provide jobs for our community.

GEN 2-R

You know, I think any one of us here, any one of the people who have testified here from the pueblo can wholeheartedly say that, yes, we do look out for the future of the youth. Yes, we do look at how are we going to provide jobs and economic stability to our communities within the area. But, again, we're faced with the cultural and religious needs and obligations that we have, you know, and it's something that I think any one of us, it's hard for us to even begin to try to answer.

You know, we can see the benefits of the economics of it, and too many times, I think, when it comes to economics, as Governor Shutiva had pointed out, when it comes to that mighty green dollar, I wouldn't say particularly Native American populations, but the

GEN
2-S

disadvantaged people are usually the last to have their concerns and needs met. You know, and it's something that needs to be considered wholeheartedly, you know, by not only the state and federal agencies that are involved in this project, but also the major player in this, as far as the mining operation is concerned.

AIR
QUAL
2-C

You know, we had talked about air quality. And the gentleman had stated about, about their air quality, and I think it's something that I had mentioned earlier about monitoring stations. I mean, we're fastly becoming a very technological society, and so much so that it even influences what we have at the surrounding Native American communities, and it's something that we also have to address, you know.

SOCIO
ECON
2-H

And in closing, and in being able to say, you know, what are the really final impacts of the Fence Lake Coal Mine as opposed to, you know, what we consider, you know, very religiously significant to our way of life, and can you see where we stand when we look at the economic advantages of being able to have something like this, and being able to look at the jobs for not only our people -- I mean, many of us aren't going to be here by the time the mine closes down. We're looking at 50 years. 50 years to many of us, you know we're not even going to see it. You know, and who is to say that, you know, something environmentally disastrous could

and can happen. It happens.

And that's all I can say in closing. Thank you very much for the opportunity.

MR. CLARK: Thank you, Mr. Lorenzo.

Let's see. The last individual that has signed up this evening to speak is Jimmie Torivio.

MR. JIMMIE TORIVIO: Good evening, everybody. I'm from the Pueblo of Acoma. And I am one of the Eagle clans there. And I do believe in my religion.

With this thing that has been anticipated about this project, Fence Lake Coal Mine project, I really don't know what really is going to be involved. But I can already kind of foresee that a lot of things is going to be disturbed.

I know my governor had mentioned quite a few things that we do believe in. We, the Native Americans, have lived in harmony with the nature. I think we have always been living in this way. We don't disturb anything. I know that the modern age has a lot of modern techniques that they have used to disturb the earth, and probably off balance it. Now we're going to -- beginning to wonder why a lot of things is happening to us.

GEN
2-T

One good example is this mining area, both up here at Ambrosia and then also down at Laguna. Many of our people had worked there and many of them have already passed

GEN 2-T

away from cancer. And I guess a lot of people from Grants here have also died. Maybe that's why the city is dying. It's beginning to be a ghost town.

Now, I think that, I know that jobs are important. Like one gentleman here was stating, that almighty green dollar has a lot of value in it. But I'm beginning to wonder, where is this coal going to be going? Is it going to be going out of the country? Or is the United States going to use it here in the states? I think of a lot of these things have been imported out just to get that almighty dollar.

GEN 2-U

A lot of things have already been taken away from the Native Americans. And either that, or has been destroyed, and nothing has been left for them, except sorrow. I think we all are beginning to see some of these things. We're gradually going to kill each other off. I think we're all beginning to see that, either by destroying our Mother Earth with all these new techniques that have been invented.

With this coal mine that's going to be going up I think it's going to destroy the land, the vegetation there, or the air that we're breathing from that's giving us oxygen, we're gradually going to cut ourselves off from those oxygens. Look what they are doing down in Amazon. Destroying the jungles, the ozone layers from the dust

that's going to be coming off of these things. I think a lot of these things are going to be, be hazardous to our health.

GEN 2-V

I really don't think that, that this coal mine should come about. I think if we learn to live in harmony with the nature, and still respect, I think we'll have a long ways to go. But right now, I think we're going to destroy ourselves. Even though that almighty dollar is there and I think that's what's getting us to, to put up some of these things, and gradually they just die out.

But I do support my governor and the things that he has brought out. I think those were good points.

HYDRO 2-J

But also, what it's going to disturb is the Salt Lake. That's our mother also. We get nourishment from her. We get our salt from there for the livestock, for our people, for whatever else that's, that is used for. All these things have been put here on the earth for us to use. To consume, and to live by. But yet, we're destroying it.

Look at the water and that's what's going to happen down there. It's gradually going to divert that water, and you are not going to see that water there around that area probably, not anymore, just like what's causing it from these minings up here by Ambrosia Lake. We're beginning to holler for water. I think a lot of these things are going to cut us off gradually or divert that water to some other

HYDRO 2-J

area if we continuously keep destroying it or blasting at the soil or the contour of our land.

GEN 2-W

But I don't have any written statement that I would like to give you, but if I had had time to prepare for this, I probably would have had something to give you. But I want to tell you that I do not support that project.

Thank you very much.

MR. CLARK: Thank you, Mr. Torivio.

And to remind everyone, you certainly do not have to submit written comments. The comments that you give us this evening will be printed in the final EIS, and again, we'll respond to your comments.

That's right. Bob Block just reminded me that you do still have time to submit written comments. You can do that by close of business on June 28th. You send it to the address that is listed on the blue sheet that you have.

I was mistaken earlier. We do have at least one more person that signed up to speak this evening. A Marylou Jones.

GEN 2-X

MS. MARYLOU JONES: Hi. My name is Marylou Jones. I live south of here, in San Rafael, and I have a question at first. Does SRP's operation of an unpermitted transportation corridor, I think it is a railroad up there at the Kayenta-Black Mesa Peabody Coal Mine in Arizona, affect their eligibility for a permit at Fence Lake under

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SMCRA? Is there any relationship?

MR. CLARK: No, there's no direct relationship. SRP has requested that the Office of Surface Mining, the State Of New Mexico, permit the railroad at Fence Lake. The railroad that you are referring to at the Kayenta mine in Northeastern Arizona is an entirely different topic. It is operated by SRP, but the Office of Surface Mining determined that that particular railroad would not be permitted.

MS. MARYLOU JONES: It doesn't need a permit?

MR. CLARK: No.

MS. MARYLOU JONES: How is it different?

MR. CLARK: Well, I tell you what I would like to do, Ms. Jones --

MS. MARYLOU JONES: Go on.

MR. CLARK: -- is after we close the public meeting, I would be more than happy to talk to you about that --

MS. MARYLOU JONES: Okay.

MR. CLARK: -- and answer that question. This evening what we would like to concentrate on during the public part is the Fence Lake project.

MS. MARYLOU JONES: Yes.

MR. CLARK: But I will certainly talk to you after the meeting and answer that question.

MS. MARYLOU JONES: Okay. Sorry, just --

MR. CLARK: For you and everyone else.

MS. MARYLOU JONES: It just seemed like, you know, coal mine, railroad, SRP, seemed alike to me.

MR. CLARK: That's a good question.

DR. BLOCK: We'll also address this formally in the final EIS. Anything you ask about, we'll address that comment --

MS. MARYLOU JONES: Okay.

DR. BLOCK: -- in the final.

MS. MARYLOU JONES: Okay. It also seems to me

GEN 2-Y

that the mitigation measures mentioned in your EIS reflecting our cultural values, that are cost effective, and a lot of people here tonight are defending their Acoma culture, but maybe it's not them who should be defending themselves. Maybe it's us. Maybe it's me, and Mr. Clark, and Dr. Block, that all -- maybe we're the ones who need to reexamine our values and how you decide, you know, what impacts are negligible and that kind of thing.

GEN 2-Z

To me a coal mine that lasts only 28 years is not the long-term economic development I want for my children. My kids are 5 and 8. And I don't know, I would like a little more leeway in there for my grandkids.

It seems to me that once our culture moves through an area, all the hills will look like the rounded mounds of

GEOL TOPO 2-B and GEN 2-Z-1

Kentucky, and there are very few people who will have rounded mounds of money to go with it.

We don't seem to be happy until every place looks just alike; the streets are the same, and MacDonald's and Allsup's on every corner. Maybe some places should be left alone.

GEN 2-Z-2

I'm also concerned because OSM's director, Robert Urim, is a former coal industries attorney who fought reclamation at the AM coal mine near Gallup for years. How can we believe that he will suddenly push for reclamation now and will follow these mitigation measures? As a former attorney for a Hansen-owned subsidy, Hansen being the largest producer of coal in the U.S., Urim knows which side his bread is buttered on.

Thank you.

MR. CLARK: Thank you, Miss Jones.

Okay. That completes everyone that said they would like to speak this evening. I would certainly like to give everyone else an opportunity to speak now.

Okay. With that said, that completes the public meeting this evening. And we are now off the record.

DR. BLOCK: Can I make a statement? If you don't mind, I would like to just clarify one point that I spoke about.

I didn't mean to confuse anyone or suggest that we don't consider the water issues and Zuni Salt Lake a negligible issue. The reason, one of the main reasons we did the Environmental Impact Statement, we considered impacts to Zuni Salt Lake a very major issue. Air quality, water quality, all of those are very major issues. But what I was suggesting with negligible, minor, moderate, and major, I was giving examples of what the team concluded after doing an analysis of what we considered some of the key issues in the project.

So, I realize that not everyone here agrees, or may or may not agree with our conclusions, that we're saying that there will be no impact to the water quality at Zuni Salt Lake. There will be no impact to the air quality at Zuni Salt Lake. But we still think, you know, it's a major issue. It's a major concern for a lot of people. But that's the conclusion of the technical team, that because it is a major issue we have looked at it in a lot of different ways, you know, in terms of water, in terms of cultural resources, terms of air quality, and the other areas that we have analyzed, and we have come up with these assessments, that there will be no impact or there will be a moderate impact on different parts of the project.

So I hope I didn't confuse the situation when I gave those examples of some of our conclusions in the EIS.

MR. CLARK: Okay. Thank you, Bob. Okay.

We're off the record now.

(The public hearing concluded at 8:30 p.m.)

Exhibit - 3
(Public Meeting in Albuquerque, NM June 3, 1995)

GEN
3-A

MR. ARTHUR MOGILEFSKY: Excuse me. I would like the record to reflect that I have --

MR. CLARK: Excuse me, sir. Before you speak you need to say your name.

MR. ARTHUR MOGILEFSKY: My name is Arthur Mogilefsky. I'd like the record to reflect that I have to laugh when you use the term "short-term" in connection with 50 years.

DR. BLOCK: Okay.

Long term, anything that lasts beyond the life of the mine. For instance, the major impact to some of the cultural sites would be long term. Okay.

Also in the Draft EIS, OSM has stated what our preferred alternative is at this point in the process. I mean, we're not done with our analysis. We're going to take all the comments we receive this week and anything we receive up until June 28th, which is the close of the comment period. If you would like to send written comments, please send them though the address that's in the Draft EIS, to me, or it's also on the blue handout. And we will address all those comments in the final EIS. And so, we'll be doing additional analyses.

But at this point, to fully inform the public, to be up front on where we're at at this time, our preferred

alternative, based on what we have looked at, is approval of the project with certain standard conditions that would be attached to the permit.

Okay. The next step -- let me backtrack for a second. I mentioned the two appendices. The summary of the mine plan, the cumulative developments. The third appendix, Appendix C is references.

The fourth appendix, Appendix D, the last appendix in here, is a programmatic agreement on cultural resources that was developed about two years ago between the BLM, OSM, and a number of the tribes, the State Historic Preservation Office, the Advisory Council on Historic Preservation. This deals with treatment of cultural resources, unanticipated finds or unidentified finds in the project area.

There may be a fifth appendix in the final EIS, and this would be a Memorandum of Agreement on burials that the BLM is developing right now with a number of the tribes. If that's completed by the time we're ready to publish, that would be included.

Okay. The next step is working on the final EIS, and we will address all the comments we receive between now and June 28th. And we expect the to publish the final before the end of the year, final EIS.

Public meetings. Bill Clark's mentioned where we held those this week, and our strategy is to try to encircle the project area and give everyone that might be interested in this project, all members of the public, an opportunity to participate. So we have tried to be available to both Indian and nonIndian peoples around the entire project area.

We have mailed out over 800 copies of the Draft EIS with a schedule of public meetings, times, and places on the first page. We sent personal invitations to all of the seven concerned tribes, to the governors or presidents or chairmen's offices. We have sent sets of fliers announcing these meetings to all of the tribes. We have invited both state historic preservation officers, the council, the Advisory Council on Historic Preservation, all three boards of county commissioners of the affected counties, invited everyone to participate and to help us spread the word about the process.

We have contacted six radio stations and asked them to broadcast announcements about the meetings. Four of these stations are bilingual, in either English and Navajo, or English and Zuni. We have published in eight newspapers for two consecutive weeks in the project area, around the project area, announcements of our meetings. So, we hope we have gotten word out as well as we could about the opportunity to become involved.

Okay. If you don't have a copy of the Draft EIS, or if you would like to get on our mailing list, please let

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me know. If you signed up on our sign-up sheet, you are definitely on it, and we have a couple of copies of the draft with us if you haven't received one already. My phone number, if you have any questions later on, is on that sheet. And also the address to get more copies. And we also have some copies available at our Albuquerque field office. And just ask for Brad Orrell. I think he has got ten copies.

MR. RAD ORELL: Two boxes. I'd be glad to get rid of them.

DR. BLOCK: And Bill Sanderford's office has additional copies at the state office in Santa Fe. So please, get your comments in, or if you have any friends that want to send comments by 4:00 p.m. Mountain Standard Time on June 28th.

Thank you for your time, and I'll return it back to Bill Clark, who will take your public comments. Bill?

MR. CLARK: Thank you, Bob. Okay. We can now begin the oral presentation of any comments that you might want to give us today. We would like to let you know that this is a very public process. We take the comments that you give us, either orally or in writing, very seriously. The comments that you do give us, whether oral or written, will be in the Final Environmental Impact Statement later on this year, and we will respond to each and every comment that is given to us.

Once the Final EIS is completed, the department will be making decisions that I mentioned previously. And if you are on our mailing list, and receive a copy of the Final EIS, then within probably 30 to 60 days after the Final EIS, you will be sent a copy of the Department of Interior's final decisions.

We accept all comments, whether they are negative, positive, or neutral. And with that said, like I mentioned before, I think everyone has signed up, but you didn't say you wanted to speak. But I would like to give you that opportunity to come forward and speak.

MR. CLARK: Yes, ma'am.

CULT 3-A

MS. JOHNNITA TOWNSEND: My name is Johnnita Townsend. I'm a member of the Zuni tribe, and I live in Albuquerque. I heard about this meeting NPR yesterday on my way home from work. And I really feel that the major impacts you are talking about, as far as cultural is concerned -- what are the -- how are you going to restore the impact that it does have on our cultural resources in that area?

DR. BLOCK: Okay. I guess we don't have any of the archeologists. We have three archeologists, one with Bill's office, one with our office, and one with BLM, that worked on the cultural section, and they -- do you have a

copy of the Draft EIS?

MS. JOHNNITA TOWNSEND: No.

DR. BLOCK: I will give you a copy to take with you. They discussed this at length, and they have a list of proposals that they are suggesting as mitigative measures for impacts to cultural resources. And I guess what I -- the best way to approach it is to have them address that question in the final. I know it's going to be a number of months before they finish doing that, but that's part of the process.

We did meet with the Zuni Tribal Council and their advisory committee on Thursday afternoon, and discussed the hydrological issues which are kind of interrelated with a lot of the cultural issues with them, and we're going to be receiving comments from Pueblo of Zuni within the next few weeks. Roger Anyon, the Director of the Cultural Preservation office at Zuni, also spoke at our meeting in Gallup on Wednesday night, and he indicated that he would be submitting comments, and we'll be addressing all of those questions, too.

CULT 3-B

MS. JOHNNITA TOWNSEND: I have a 13-year-old son, and men have a real role in the Salt Lake area, plus near the St. Johns area. He's only 13 years old. He cannot speak for the pueblo, for the decisions that are made today. You talk about the long-term impact, 50 years from now. I

CULT
3-C

mean, he's only 13 now. He doesn't have -- his stake is greater. I mean, it's getting greater as he goes up in age, but there's nothing he can do about it. It's like he's in a powerless situation, and the people that are in position today, like our tribal council, I have heard Harry Chimoni's comments and Anyon's comments, and I think, you know, those need to be listened to, and that's -- that they represent our interests and our cultural resources in those two areas need to be protected. 50 years from now my son will be 63 years old and how is anything that is lost ever going to be restored.

DR. BLOCK: I might add that the survey work that's been going on for probably seven or eight years out there has involved quite a few of the concerned tribes. And I think there's been a Zuni consultant group that was involved in the cultural resource work that's been done to this date. And I know that Salt River Project is, they have an archeologist, too, who has been communicating, coordinating with the Acoma, and the Zuni, and the Ramah Navajo, and other interested tribes.

Let's see -- one of our points, I should say, too, that our conclusion in the analysis is that there will be no impacts to Zuni Salt Lake, especially -- I guess our highest level of concern is about impacts to the salt, the water, and the air quality. And our conclusion is there will be,

what we say are negligible impacts, but no impacts to water, salt, or air, at the lake. And we'll address it more fully in the final.

MR. CLARK: Miss Townsend, what we'll do, make sure you pick up this copy of the EIS right here, and I have marked on the front, cultural resources, the best place to look at that is beginning in Chapter 3 on page 3-25 and in Chapter 4 on page 4-23. And I wrote that up here. If you will look at the, beginning on those pages, there's a, I think a fairly comprehensive discussion about the inventory of the cultural resources, and what we think the impact on those will be. And I would ask you to look at those, and then if you still have any concerns, please make sure you get us written comments by June 28th of this month.

DR. BLOCK: There's also the permit application package which, it consists of a series of 15 binders that have the more detailed proposals and procedures that the company would follow if the project is approved. It's available in Santa Fe and at the Albuquerque field office, the one that's on Marquette. And out of sensitivity to the concerns of the interested tribes, we have taken Volumes II, III, IV, and V, out, and locked them up as confidential material, because it contains some sensitive cultural information. So probably the best summary I think you are going to find is what's available in the EIS.

MS. JOHNNITA TOWNSEND: Thank you.

MR. CLARK: Any other comments? Miss Townsend?

MS. JOHNNITA TOWNSEND: No.

MR. CLARK: Yes, sir. Go right ahead.

MR. ARTHUR MOGILEFSKY: My name is Arthur Mogilefsky, and I would like to make my comments in the form of a letter. And there's some information that I need before I can prepare this letter. And I would like to know who would be willing to provide it, or where I would have to to go to get it.

MR. CLARK: Okay. If you want -- do you want to --

MR. ARTHUR MOGILEFSKY: Can I set out what each item is?

MR. CLARK: You certainly can.

GEN 3-B

MR. ARTHUR MOGILEFSKY: Okay. A recitation of the notifications that were made for the most latest set of meetings culminating in today. The TV, the newspaper ads, that information which I don't believe is in the supplemental report. I thought it was. I don't see it now.

DR. BLOCK: Because we were -- we set up the meetings, we set up the times and places, and then after the Supplemental Draft was issued, then we had to, next step was for us to take care of notifications. That's what we have

been doing for the last months, and I will be glad to furnish that to you. It's not published in that yet. It will be in the final.

GEN 3-C

MR. ARTHUR MOGILEFSKY: Would that include the number of people? Could that include the number of people that attended each of those meetings?

MR. CLARK: Well, what we would like to do there is, you will find that information in the final EIS. I mean, if you want to know how many people attended the meetings this week, I mean, we could tell you kind of off the top of our head. At Quemado --

MR. ARTHUR MOGILEFSKY: Somebody already told me off the top of their head, but I didn't write it down.

MR. CLARK: Okay. I think at Quemado, we had, and these are just estimates, we had six.

DR. BLOCK: Six.

MR. CLARK: Six people show up. At St. Johns, Arizona, we had three. In Gallup, we had eight.

MR. ARTHUR MOGILEFSKY: Eight.

MR. CLARK: And in Grants we had 14. And today we have three. And the reason we're saying that, because the other people that are here are part of the project, and so I'm just giving the number of the public that's attended.

MR. ARTHUR MOGILEFSKY: What I'm looking for

GEN
3-D

would be the, I guess we would call the list of notification or advertising schedule, or whatever you call it.

And then also, there is a wind direction chart in the original report, and that shows the, from the center of the mine site to the surrounding area. I don't know, maybe it goes four or five miles. Apparently a new wind direction chart has been prepared. I saw a copy of it in the State Archeologist's or state office, Jim O'Hara's office in Santa Fe. And I would like a copy of that wind chart.

DR. BLOCK: Is there a new wind rows in the --

MR. SANDERFORD: We receive meteorological reports on a quarterly basis, and they have extensive amounts of information on them. I know there is a new wind chart, I'm pretty sure in one section of the permit application package there's a wind chart that's in there. I certainly can take care of that if I could get your name and address or a business card.

MR. ARTHUR MOGILEFSKY: Okay.

MR. SANDERFORD: I can arrange to send something to you.

MR. ARTHUR MOGILEFSKY: I think my name and address is on there.

MR. SANDERFORD: Okay. Got you.

MR. ARTHUR MOGILEFSKY: Do you have any idea when I could have that?

MR. SANDERFORD: I should be back in the office, assuming I don't drop dead from exhaustion, on Monday. So --

MR. ARTHUR MOGILEFSKY: I know the feeling.

MR. SANDERFORD: So I can -- what I would suggest. I can -- if you -- do you have a fax?

MR. ARTHUR MOGILEFSKY: Yes.

MR. SANDERFORD: Well, fax would be faster than mailing it, so why don't I take your fax number, and I can --

MR. ARTHUR MOGILEFSKY: 281-0408.

MR. SANDERFORD: And what I can do is send you that particular diagram. But there's a wealth of additional information that has been gathered over the last ten years in regards to weather patterns, meteorological conditions, that sort of stuff.

MR. ARTHUR MOGILEFSKY: All I'm looking for would be, I guess could be reduced down in size to one page. And it's a very similar to the wind direction --

MR. SANDERFORD: Sure. No problem.

MR. ARTHUR MOGILEFSKY: -- the original thing, and if you speak to Jim O'Hara, he'll probably remember the one he showed us. It was multi-colored, I believe.

MR. SANDERFORD: "Okay. We can certainly provide you with that. That would not be any problem at all.

MR. ARTHUR MOGILEFSKY: What was your name?

MR. SANDERFORD: Bill Sanderford, S-A-N-D-E-R-F-O-R-D.

MR. ARTHUR MOGILEFSKY: Okay, Bill. I appreciate that.

MR. CLARK: Mr. Mogilefsky, thank you. If you -- do you have any comments, or do you just have these kind of requests? Because if you do, what we might want to do is get on the side with you and try to do that, or we can continues on the record if you want to --

MR. ARTHUR MOGILEFSKY: I have about three or four more things and there doesn't seem to be an overwhelming crowd here.

MR. CLARK: Okay. Go right ahead.

MR. ARTHUR MOGILEFSKY: This lady has spoken. My wife and I are the only other members of the public here. If you are in a hurry to go somewhere, I can do it later.

MR. CLARK: Oh, no. I didn't mean that at all. In fact, we'll stay as long as we need to.

MR. MOGILEFSKY: Yeah. This is the --

MR. CLARK: Go ahead.

MR. ARTHUR MOGILEFSKY: If you'll just be patient.

MR. SANDERFORD: May I get your ZIP code?

It's not here.

MR. ARTHUR MOGILEFSKY: 87008.

DR. BLOCK: I guess one of the concerns is we may republish everything that's recorded in the Final EIS. We haven't decided yet. Do you want your fax number in the final? That's why --

MR. MOGILEFSKY: Sure.

DR. BLOCK: Okay. Because it's going to go on the record. That's all.

MR. ARTHUR MOGILEFSKY: I'm happy to hear from anyone. The number will be disconnected by the time you finish your work.

DR. BLOCK: Okay.

MR. CLARK: Okay. Please continue.

GEN
3-E

MR. ARTHUR MOGILEFSKY: Also, I would like to obtain a copy of the standard conditions that attach to the permit. They have been mentioned several times in the various literature, but I haven't seem them anywhere, and I would like a copy of them. Does someone have those?

MR. SANDERFORD: Maybe I can take care of that one. What we do, and we have currently 14 permits in the State of New Mexico for coal mining operations. What we will do is take a standard list of conditions, concerning threatened and endangered species, archeological resources -- there's a whole list of them that we will attach to a permit that authorizes the surface coal mining. Along with that, if there are any specific issues that deal only with that operation that we have to in one way or another put a condition on, they will be included on there. So there's a standard list, and then there's an additional list that will be placed on it. If for some reason we have to have all work completed say on archeological resources within a two-year period, that would be something that would go into the permit also. And that would be in the condition and stipulations portion of the permit. So I can send you an example of what --

GEN 3-F

MR. ARTHUR MOGILEFSKY: The standard ones are -- it will be probably be safe to assume there's no special conditions on this project yet, because it hasn't been approved.

MR. SANDERFORD: Exactly. They wouldn't do that until the end.

GEN 3-G

MR. ARTHUR MOGILEFSKY: If I could just see what the standard conditions are, that would be very helpful.

MR. CLARK: And what OSM will do, Bob will send you a copy of our standard conditions, also.

MR. ARTHUR MOGILEFSKY: That would be --

MR. CLARK: A simple two pages.

MR. ARTHUR MOGILEFSKY: That would be helpful,

too.

GEN 3-H

Also, if someone has a copy, I imagine it's a government publication of some type, of the guidelines in preparing an environmental impact statement. In other words, the guidelines that you were mandated to follow in preparing these statements. Does someone, one of your organizations have that?

DR. BLOCK: The Council on Environmental Quality has published a set of regulations, and I think I can make a copy for you. And it consists of the guidelines that we are supposed to follow.

MR. SANDERFORD: About 150 pages.

DR. BLOCK: It's available in the federal records. Wherever the federal regulations are located, you could purchase the entire volume, part of the code of federal regulations. In fact, I think they refer to it in here.

MR. CLARK: Yes, they are referred to in the EIS, but there's a -- the CEQ rules themselves I think are just a few pages long, and we can send you those, okay. But what you also need to understand is -- for example, our office has a handbook that we use that's in a three-ring binder that's about, you know, three inches thick, that helps us, you know, when we prepare an environmental impact statement. So I presume maybe you could take the CEQ guidelines, which is the Council of Environmental Quality, by the way, and look at that, and then if you need anything further, we could assist you.

MR. MOGILEFSKY: Okay. Just -- does someone have a copy of that that they could furnish me with?

MR. CLARK: Yes, the CEQ guidelines.

DR. BLOCK: The CEQ regulations are at 40 Code of Federal Regulations, part 1500, and that should be available at any law library.

MR. CLARK: We can supply you a copy of that if you want it.

MR. ARTHUR MOGILEFSKY: It will be nice. I'm kind of running into a time bind here, which I'm going to get to in just a moment.

MR. CLARK: We'll do that.

TRANS
3-A

MR. ARTHUR MOGILEFSKY: Also, there was some confusion about the highway going into the project. On Forest Service maps that we have looked at it shows that the county highway that is proposed to be reworked for, you know, to be able to handle heavy traffic, is about five miles south of where it shows on the maps that are in the EIS. And I talked to Bob about it briefly. I'm wondering if there could be a clarification of where that location of that Hubbell Road actually is in relation to where it is now.

TRANS
3-B

DR. BLOCK: The Hubbell Ranch Road?

MR. ARTHUR MOGILEFSKY: Yeah, where it is now and where are -- what do they call it?

MS. SANDRA ROBINSON: The primitive road.

MR. ARTHUR MOGILEFSKY: The primitive, primitive road. Did you have a chance to check or you don't have --

MR. BOB BARNARD: I don't have those maps with me.

DR. BLOCK: That's in the original EIS Volume II you are talking about, or in the smaller volume.

MR. ARTHUR MOGILEFSKY: Well, it's the one -- yeah. It's the one of, the smaller volume now. Yeah.

MR. CLARK: This one?

MR. ARTHUR MOGILEFSKY: The Forest Service map showed that that road is actually five miles. The entrance where that road leaves 117 or 36 is actually five miles south of where it appears to be on this map now. It could be that our map is outdated. I believe it's a 1980 Forest Service map.

DR. BLOCK: Well, I'm not sure about that specific road, but talking to people about this when we prepared the transportation section that addressed the roads, they found out that there had been a number of changes made by the county in the way the roads are

TRANS
3-B

numbered, and apparently some of the locations needed to be corrected, and so, the road map in the Supplemental Volume I is not the same as the maps that you see in the Volume II because there were corrections that have been detected since then. I suspect the same thing with that Forest Service map. I would guess it's an error, because I think that Volume I of the Draft Supplemental has the most up-to-date information, although we're not real specific, see. We're not trying to precisely locate things in there. We're describing in more of a general, relative way.

TRANS
3-C

MR. ARTHUR MOGILEFSKY: The reason, and this would come under a comment as opposed to a request for information. The reason would be that, I believe that one of the areas where there was going to be a minor to moderate impact was in transportation, that these roads are extremely rural. Car goes by once every four or five hours, and by adding, I believe it was 217 round trips a day, that the impact on these roads was going to be moderate to major, I don't recall exactly which. And depending on how the roads are actually aligned, it would seem that the further north you could go on 117, in other words, if there is a road, if there is an access further north than what we're showing here, perhaps this primitive road, that that -- using, improving that road and using that road would disperse the traffic and lessen the impact on what you might call the

TRANS
3-C

greater Quemado downtown area. So, this is the reason I mention it. If there is, in fact -- if we're talking about the same road, great. But if you can go further north on 117 to access the center of the mine project, not only would it shorten the distance of people coming from Grants or Gallup, but it would lessen the impact of the traffic problem.

MR. CLARK: Point of clarification. You are comparing, I believe, a map that is in Volume II of the EIS which is entitled "Existing Roads, Figure 1."

DR. BLOCK: That's Volume I, isn't it?.

MR. CLARK: No, excuse me, it's Volume I. I was in error.

And I need to know the other map that you are talking about. You are referring to a Forest Service road or Forest Service map? If you don't know the map and the date, can you provide that to us in your written comments or maybe a copy of it, then we can make sure that's clarified.

MR. ARTHUR MOGILEFSKY: Could I defer to my wife for a moment? I think she might be able to explain it a little more clearly.

MS. SANDRA ROBINSON: My name is Sandy Robinson.

MR. ARTHUR MOGILEFSKY: You want me to finish first and then have her --

MR. CLARK: However you want to do it.

MR. ARTHUR MOGILEFSKY: I will just defer to her for a moment.

TRANS 3-D

MS. SANDRA ROBINSON: The map that you have on the table over there, it shows the road we're talking about. It's actually three to four miles further north than the road that is indicated in this Volume II map here.

DR. BLOCK: I might comment that I talked to the -- as I mentioned, that was prepared by Salt River Project, and I was told by the permitting engineer that put together that map that he found out that some of that material is kind of dated. It was useful to show the entire project area?

MS. SANDRA ROBINSON: Okay.

DR. BLOCK: But for instance, he said that the Arizona land ownership he found is not as up to date as it should be, and it's possible some of the road information is old, too.

TRANS 3-E

MS. SANDRA ROBINSON: Okay. Now did you make some reference in the latest supplement that suggested the Hubbell Road will be realigned and there will be some changes on it to avoid going by the main ridge of the mine or whatever, and I was wondering if maybe that was part of the improvements, because that shows the road being a lot straighter and more direct and a little further north than

the current road.

DR. BLOCK: I don't think the intersection with the, was it 117? Was that the road? I don't think that's going to change. I think it's inside of Hubbell Ranch that they are going to relocate it. I think the access to the highways, that's going to remain where it is right now. So just a matter of -- we'll run that down.

TRANS 3-F

MR. ARTHUR MOGILEFSKY: That being the case, I would like to request from the appropriate agency an updated map showing the county and state highways in the vicinity of the mine area, and where they are actually located, and how they are going to be used, because there appears to be some confusion about it. And I was wondering how soon I could obtain that information.

DR. BLOCK: Well, we'll find out what agency has a map, then, and refer you to them. I'm not sure --

MR. CLARK: Well, one thing we'll do --

MR. ARTHUR MOGILEFSKY: I think it would be your responsibility to provide a correct map because it's in your book.

MR. CLARK: Well, one thing that we will do is we'll compare the map that you referred to that's on the back table that SRP supplied to us with the map that's in the EIS, and we'll rectify any errors, okay? If it needs to be corrected in the EIS, then we'll have it corrected in the final EIS.

GEN 3-I

MR. ARTHUR MOGILEFSKY: Okay. For the purposes of my comments, though, could I have a faxed copy of the corrected version within a short period of time, or do you think it's something that's going to take an extensive amount of time.

DR. BLOCK: We don't know. We'll try. It just sounds like there have been a lot of changes going on in the last couple of years, and hopefully that's all in one map, but we'll try.

GEN 3-J

MR. ARTHUR MOGILEFSKY: The last thing, that I have is, I would like to ask Mr. Block for a 35-day -- a 30-day extension to submit comments to the EIS, occasioned by no fault of my own, through a debilitating illness that I have been suffering from for the last three weeks.

MR. CLARK: We will take your request under advisement, but I would remind you that you have until almost the end of this month to put comments together, and so, I would hope that would be an appropriate amount of time.

MR. ARTHUR MOGILEFSKY: According to my physician, it will be another two weeks before I am able to put in the type of energy that it's going to take to prepare the material that I have in mind. This letter will address extensive legal and other issues as related to the EIS, and

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will take considerable time and effort for preparation, and I do not think because of my physical condition that I will be able to prepare it in time. And that's why I asked for the extension.

GEN 3-J

MR. CLARK: Okay. Well, we'll consider your request and we'll respond to you within five to ten days.

GEN 3-K

MR. ARTHUR MOGILEFSKY: Okay. And lastly, the reason I asked that the information I request be expedited is that in the event the extension of time is denied, that I will have the information I need to do what preparation that I will be able to do in the time allotted.

DR. BLOCK: I think, Mr. Mogilefsky, I think looking at the items you requested, most of them we can get to you shortly. And we'll -- maybe the most difficult would be the map of county and state roads at the level of detail you're asking for, but we'll do our best on it.

MR. ARTHUR MOGILEFSKY: That's probably the item of the least concern is the map. I can mention that. It could always be followed up on later.

DR. BLOCK: Okay.

MR. ARTHUR MOGILEFSKY: The other things are for my standpoint, are more important.

DR. BLOCK: Okay.

MR. SANDERFORD: Bob, if it would help, I could go to the State Highway Department.

DR. BLOCK: That might --

MR. SANDERFORD? In Santa Fe.

DR. BLOCK: He's local.

MR. SANDERFORD: It might be hard for you to try to track down some of these things, and Danny Freyer, the County Manager of Catron County might have. I have got his telephone number, and he might have some county maps that we would get available, so it might be easier for me to do the leg work down here as opposed to -- maybe I should get your telephone number also, in case --

MR. ARTHUR MOGILEFSKY: 281-7129. I regret putting time pressure on you, but I didn't anticipate the situation. Today is my first day out of bed in just about three weeks. And it came on real suddenly. Thank you.

GEN 3-L

MS. SANDRA ROBINSON: I just have another comment. You guys have had several alternatives on this thing. Some have been -- I don't know if it's approved or you have changed the alternatives as you see things and problems coming up, like the haul road, you no longer are considering the haul road, I guess, because of too much dust?

DR. BLOCK: The Salt River Project is the body that's made the changes. We are the agency that the proposals are submitted to, so we don't make the changes. We consider what they proposed. That's right. They have

changed their proposal from a haul road five years ago, or projection of a haul road to a railroad, is what they are proposing today.

GEN 3-M

MS. SANDRA ROBINSON: Okay. Do you have any idea, like, let's say this is not approved because of various sensitive Indian sites and other problems, will there be other alternatives like going out on regular roads hauling the coal out? Would that be an alternative in the future, or has that already been dismissed?

DR. BLOCK: Well, in our analysis we concluded that if the project were disapproved, that, that it will be total disapproval of mining of coal. We said that we felt if the federal coal were not approved for mining, that it would be uneconomical for the company to -- well, let me back up a second. We said the disapproval would include disapproval of the rail corridor in Arizona and disapproval of mining of the federal coal at the mine, and we felt that removing one-third of the coal deposits from the project and eliminating the corridor as a means of transporting the coal to the mine would mean that the project would not go forward.

MS. SANDRA ROBINSON: Okay.

DR. BLOCK: So our conclusion is that there would not be a use of other means to get the coal to the market, and they would not mine the state and private coal.

MR. CLARK: And I would refer you to page 2-2 in Volume I of the EIS, because the third bullet there explains what Dr. Block just said.

DR. BLOCK: It probably explains it better than I just said it.

MS. SANDRA ROBINSON: You did pretty good.

MR. SANDERFORD: Bob wrote it.

DR. BLOCK: That's right.

MR. ARTHUR MOGILEFSKY: Okay.

MR. CLARK: All right. Would anybody else -- any more questions?

All right. We thank you for coming this Saturday morning. It's so nice outside, that maybe that's why we didn't have a big turnout. We are now off the record.

(The hearing concluded at 11:00 a.m.)

Exhibit - 4

UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

May 17, 1995

95-05-22-27

Mr. Charles E. Sandberg, Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
Attn: Dr. Robert H. Block
1999 Broadway, Suite 3320
Denver, CO 80202-5733

Dear Mr. Sandberg:

Enclosed are comments on the Draft Environmental Impact Statement for Proposed Mining Plan and Permit Application, Fence Lake Mine, Catron and Cibola, Counties, New Mexico; and Apache County, Arizona. We hope their comments will assist you. Thank you for giving us an opportunity to review the document.

Sincerely,

Donna Wieting

Donna S. Wieting
Acting Director
Ecology and Conservation Office

Enclosure

Block has disks

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Silver Spring, Maryland 20910

MAY 15 1995

MEMORANDUM FOR: Donna Wieting
Ecology and Environmental Conservation Office
Office of the Chief Scientist

FROM: Captain Lewis A. Lapine, NOAA
Chief, National Geodetic Survey

SUBJECT: DEIS-9505-03 -- Proposed Mining Plan and Permit Application, Fence Lake Mine, Catron and Cibola, Counties, New Mexico, and Apache County, Arizona

GEN 4-A and see Appen. A

The subject statement has been reviewed within the areas of the National Geodetic Survey's (NGS) responsibility and expertise and in terms of the impact of the proposed actions on NGS activities and projects.

All available geodetic control information about horizontal and vertical geodetic control monuments in Catron and Cibola Counties in New Mexico and Apache County, Arizona is provided on the diskettes accompanying this memorandum. This information should be reviewed for identifying the location and designation of any geodetic control monuments that may be affected by the proposed project.

If there are any planned activities which will disturb or destroy these monuments, NGS requires not less than 90 days' notification in advance of such activities in order to plan for their relocation. NGS recommends that funding for this project include the cost of any relocation(s) required.

For further information about these monuments, please contact John Spencer, NOAA, NGS, N/CG1, 1315 East-West Highway, Silver Spring, Maryland 20910, telephone 301-713-3169, fax 301-713-4172.

Attachments

Exhibit - 5

SRP

SALT RIVER PROJECT
POST OFFICE BOX 52025
PHOENIX, ARIZONA
85072-2025
(602) 236-5900

WESTERN SUPPORT CENTER
95 JUN 12 PM 12: 34
OSMRE-WSC

June 7, 1995

95-06-12-14

Mr. Bob Block
OFFICE OF SURFACE MINING
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

Re: Fence Lake Mine
Supplemental EIS
National Geodetic Survey Comments

Dear Mr. Block:

In regard to your letter dated May 24, 1995, Jay Zimmerman of SRP's survey group perused your six diskettes and confirmed that the locations of all of the National Geodetic Survey (NGS) monuments in the database were already known to SRP. In fact, Mr. Zimmerman indicated that he had discovered one Coastal Geodetic Survey monument in the field which was not on the list; this point evidently was not upgraded by the NGS. Regardless, none of the geodetic control points will be affected by the proposed project, as none of the monuments fall within the proposed permit area. Reportedly, a couple of the monuments are within two or three miles of the corridor, but no points are known to be any closer.

Should any questions arise on this matter, Jay Zimmerman can be reached at (602) 236-4096, or as always, please do not hesitate to call me at (602) 236-4318.

Sincerely,

Ken Rodgers

Ken Rodgers
Senior Permitting Engineer
Fuels

Enc.

cc: Glen Reeves (SRP)
Bob Barnard (SRP)
Jay Zimmerman (SRP)
Sally Tipton (NAC)

ARIZONA
STATE
PARKS

1300 W. WASHINGTON
PHOENIX, ARIZONA 85007
TELEPHONE 602-542-4174

FIFE SYMINGTON
GOVERNOR

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SEDONA

M. JEAN HASSELL
STATE LAND COMMISSIONER

KENNETH E. TRAVOUS
EXECUTIVE DIRECTOR

CHARLES R. EATHERLY
DEPUTY DIRECTOR

May 18, 1995

95-05-22-31

Charles E. Sandberg, Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, CO 80202-5733

ATTN: Dr. Robert H. Block

RE: Fence Lake Coal Mine Project, SRP, OSM and BLM

Dear Mr. Sandberg:

CULT
5-A

Thank you for sending us a copy of the draft supplemental Environmental Impact Statement (EIS) for the above proposed federal undertaking. I have reviewed both volumes of this well-prepared EIS and have the following comments:

As you know, our office is concerned with cultural resources in Arizona and ensuring that the Section 106 process is followed as mandated by federal regulations. I have reviewed those portions of this draft supplemental EIS that apply to cultural resources and it is my opinion that the federal agency has adequately considered all known potential impacts to cultural resources and that the cultural resources information is accurate and up to date. I found this to be an interesting and thorough document that discussed a number of alternatives applicable to the treatment of cultural resources. The EIS also includes the Programmatic Agreement that was executed for this federal undertaking. I cannot offer suggestions to improve of this draft and thus accept this EIS as written.

Your cooperation with our office in complying with NEPA and our Programmatic Agreement for this undertaking are very much appreciated. If you have any questions, please contact me at (602) 542-7137.

Sincerely,

Robert E. Gasser
Compliance Coordinator
State Historic Preservation Office

MANAGING AND CONSERVING ARIZONA'S NATURAL, CULTURAL AND RECREATIONAL RESOURCES FOR THE BENEFIT OF THE PEOPLE

Exhibit - 6

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
P.O. Box 26567
ALBUQUERQUE, NEW MEXICO 87125-6567

AREA CODE - 505
FAX # 766-2666
Vfr. 766-1792

DATE: 5/19/95

SENDING 1 cover sheet and 1 page (s)

TO: Robert Block
Office of Surface
Mining

FAX (FTS)# (303) 672-5641
Commercial #
Verification#

FROM: Charles Tippeconnic
DOI./B.I.A.
Albuquerque Area Office
Branch of Natural Resources

FAX (FTS)#
Commercial#
Verification#
Verified
DATE & TIME

REMARKS: Comments on Fence Lake Mine
Project.

DISPATCHED BY: Joe DATE: 5-19-95

To: Environmental Quality Specialist
From: Supervisory Hydrologist
Subject: Comments on Hydrology of Draft SEIS, Fence Lake Mine

HYDRO
6-A

The possibility of ground-water impacts from the subject mine's development to Zuni Salt Lake is remote; the to-be-mined horizons are not present at Zuni Salt Lake. The underlying Dakota sandstone is planned to be used as a water supply for the mine which is more than 10 miles from Zuni Salt Lake. The draft SEIS says a monitoring well is already in place and that water level data would be collected to be compared against "historic natural variation".

A copy of that historic record would be appropriate to have in-house, along with a description of where that record is collected from. Additionally, a well completion diagram of the dedicated monitoring well would be appropriate, including a stratigraphic description, total depth, screen interval, and static water level information. Finally, identifying the individual responsible for collecting and maintaining the water level data is desirable.

Unless the authors of the SEIS are coming in to AAO for additional reasons, I have no need to meet with them, assuming that the above information is no problem to be delivered.

Supervisory Hydrologist

Hillam D. White
19 May 95

Exhibit - 7

Mr. Stefan Verchinski
2700 Espanola St. NE
Albuquerque, NM 87110

95-05-24-04

Re: Fence Lake Coal EIS.

For the Record:

Comment:

AIR QUAL 7-A and GEOL 7-A

I would like to see addressed the impact of the coal sale and subsequent mining on releases of Mercury into the atmosphere. This impact is part of the Clean Air Act review and is being shown in EPA studies to have a significant impact on all our surface waters. This should be classified as a secondary impact of coal production that currently is not addressed as to significant biological impact to man and animals.

Stephen Verchinski

US EPA Reference Documents upon request.

Exhibit - 8

Ⓘ Marvyn Tildon 5/30/95
EXHIBIT #1

Draft Supplemental Environmental Impact Statement, (DSEIS, OSM-EIS-31, Vol. I & II), proposed Mining Plan and Permit Application, Fence Lake Mine, Catron and Cibola Counties, New Mexico, and Apache County, Arizona.

• Fence Lake Project (FLP), its site facilities, and a 44-mile railroad corridor would be associated with the proposed mine.

- 14 mi N. of Quemado, NM,
- 18,119 acres proposed to be permitted,
- 8,432 acres will be disturbed by mining operations
- 81.3 million tons of coal to be mined at FLP
- Total life-of-mine is 50 yrs.

GEN 8-A • The NO-ACTION alternative is viable and reasonable and should be re-opened for further detailed analysis.

- The Secretary of the Interior, (Bruce Babbitt), should not approve the life-of-mine mining plan if such is not the case,

CULT 8-A - The "Department" of the Interior has a "trust responsibility" to ALL Indian tribes to be culturally and spiritually impacted.

I.

- Summary, (Alternative 1) pgs. vii & viii

Some impacts of the proposed FLP will:

AIR QUAL 8-A ESTH 8-A • Degrade air quality and visibility,

TOPO 8-A GEOL 8-A • Alter topography and geology in the mine area

HYDRO 8-A • Impact surface and ground water quality and quantity including that of the Zuni Salt Lake,

VEG 8-A & WILD 8-A • Impact grassland vegetative communities and general wildlife species' diversities and populations,

VEG 8-B • Cause the loss of high-quality, relatively dense pinyon-juniper-gramma habitats,

SOCIO ECON 8-A • local employment will be short-term

LAND USE 8-A • Impact local/regional land use during life-of-mine,

CULT 8-B • have moderate to major impacts, (some long-term and/or irreversible and irretrievable), on Indigenous cultural resources.

- DSEIS, Sec. 3-28 and 4-39:

CULT 8-C • Indigenous cultural resources will suffer the most damage, most will be desecrated forever, even after mitigation and reclamation

- Salt-gathering trails, (particularly the Acoma Trail, and specific cultural sites will have major impa

III

CULT
8-D

— The greatest number of archaeological sites identified will be impacted within the first 5 years,
- 595 sites identified,
- 536 in the proposed mine area,
- 59 along railroad corridor,
- within FLP area, 60% of sites will be disturbed by mining and construction activities,
- most sites in railroad corridor will be impacted,

WILD
8-B

- Nesting raptors, (Golden eagle, prarie falcons, red-tailed hawks, kestrels, etc. and their sensitive breeding period will be disturbed,

CULT
8-E

- The Zuni Salt Lake neutral zone, Cerro Prieto (volcano), the Acoma White Rock, and Seven trails within the FLP area will be disturbed

CULT
8-F

- Most, if not all burial sites desecrated will be Anasazi.

GEN
8-B

— Council on Environmental Quality regulations at 40 CFR 1508, 27 (b) (4) and (8) specify the above to be considered since they are "Significant Impacts".

CULT
8-G

— When developed and executed, the Programmatic Agreement which provides the various Federal and State agencies and Indian tribes with a mechanism for consideration of cultural resources, consultation

IV

and dispute resolution AND the human burial Memorandum of Agreement is Public Record and should be released to ALL interested parties;

GEN
8-C

— Executive Order 12898, (signed by President William Clinton, Feb. 11, 1994), on Environmental Justice is required to be implemented in all federal department and agency actions that affect:
- Minority and low-income communities,

GEN
8-D

- People of Color and Indigenous Communities;

— NO translation for Diné who live in Area;

GEN
8-E

— The Office of Surface Mining Reclamation and Enforcement is a federal agency;

— Federal leaseholds are in the FLP area;

GEN
8-F

— Secretary of the Interior Babbitt's memo, (8-17-94), to fully support E.O. 12898 (EJ) must be incorporate in the Final EIS;

GEN
8-G

fed agency

— Public issue of OSM's involvement in and around the Black Mesa / Kayenta mines, railroads, and unpermitted slurry line; the Northern NM Navajo and Burnham mines; McKinley County Pittsburgh and Midway and Amcord's Amcoal mines needs to re-opened and further analyzed in detail and incorporated in the Final EIS;

Exhibit - 9

①

GEN 8-H — The lack of enforcement of the 1977 Surface Mining Control and Reclamation Act on Navajo land by OSM must be thoroughly reviewed and considered,

GEN 8-I — The Congressional investigation of OSM initiated in Oct. '94 must be incorporated in the Final EIS,

GEN 8-J — OSM reorganization efforts approved by Congress in Jan. '95 lacks real public participation in its development and implementation and there is no adequate and necessary public education and notice of the FLP and comment meetings, (ctr. for excellence?)

GEN 8-K — OSM Director Robert Uram's involvement with Amcord/Amcoal as its representative attorney prior to his Congressional confirmation is "conflict of interest"; if Congress had this knowledge, he would NOT have been confirmed,

GEN 8-L — OSM Director Uram, at an accountability session in Faubush, KY, on 11-05-94, promised to visit Black mesa "when the mud season is over" but Cancelled a set meeting with residents on 4-22-95, this is clearly a "breach of trust", a warning to residents / nations to be impacted by the FLP.

THE RIO GRANDE CHAPTER OF THE SIERRA CLUB

WESTERN NEW MEXICO SECTION

June 1, 1995

HYDRO 9-A The Western New Mexico Section of the Sierra Club wishes to express concern about the proposed mining plan for the Fence Lake Mine in New Mexico and Arizona. We are concerned that this project will negatively impact the environment in a broad area. We are concerned about the effect of strip mining on both the quantity and quality of groundwater over the region.

GEN 9-A We are also concerned about the impact on air quality and visibility, and on the health of forests, grassland and wildlife in the region. We are concerned about permanent changes that would be caused in the topography and geology near the mine. We also support the claims and concerns of Native American people, who wish to protect religious and historical sites in the affected areas.

GEN 9-B The Western New Mexico Section of the Sierra Club hopes that the Office of Surface Mining and the Department of the Interior will follow all appropriate Federal regulations in order to accurately assess environmental impacts and provide protection for the environment. We will be following the progress of the hearings with interest.

Submitted by:

Barbara Leonard

Barbara Leonard
Chairperson
Western New Mexico Section
Rio Grande Chapter of the Sierra Club
(HC 32, Box 1, Continental Divide, NM (505) 862-7915)

Copy to Albuquerque Group and Rio Grande Chapter, Sierra Club

Exhibit - 10

Rec 6/2/95 7:30pm

PUEBLO OF ACOMA
"THE SKY CITY"
P.O. BOX 309
ACOMA, NEW MEXICO 87034

OFFICE OF THE GOVERNOR

TELEPHONE 505/552-6604
FAX 505/552-6600

PUEBLO OF ACOMA COMMENT
ON THE PROPOSED MINING PLAN AND PERMIT APPLICATION
FENCE LAKE MINE
CATRON AND CIBOLA COUNTIES
NEW MEXICO, AND APACHE COUNTY, ARIZONA

JUNE 2, 1995

Grants, New Mexico

We have provided previous comments at meetings with the Bureau of Land Management, at public hearings held on the proposed coal mining application, and with Salt River Project (SRP). We continue to assert our concerns, some of which are repeated here for emphasis.

CULT 10-A HYDRO 10-A The Pueblo of Acoma's main concerns cover 1.) archeological resource disturbances, 2.) impacts on traditional cultural properties, 3.) damage of our traditional pilgrimage trails, and 4.) impacts on our current and aboriginal water resources and especially the total mining affects on the Zuni Salt Lake.

The Pueblo of Acoma is acknowledged to be descendants of ancient people who resided in these areas. Hence, it considers itself to be caretakers of ancestral archeological sites, burial sites, and other remains on human resources.

CULT 10-B In the coal mine area development and railway construction we have expressed deep concerns about the destruction of archeological sites and the disturbance of human remains. Thus, we are strongly opposed to their disturbances or disruption. This position is noted under Traditional Cultural Properties, Potential Impacts, and Mitigative Alternatives (Proposed Mining Plan and Permit Application, Fence Lake Mine, Catron and Cibola Counties, New Mexico, and Apache County, Arizona: page 4-29, hereafter cited as Proposed Mining Plan). Albeit, we have requested a Memorandum of Agreement be formed that would help determine the treatment of archeological artifacts, human remains, and funerary items. We have recommended that a forty acre site be set aside for any reburials. We consider any damage to burial sites a major impact rather than being considered "moderate impacts", as noted in your the description of cultural resources on Table 2-1, COMPARATIVE SUMMARY OF IMPACTS (Proposed Mining Plan: page 2-4).

CULT 10-C The Pueblo of Acoma, even today, believes and performs its traditional religious practices and still travels on pilgrimages to Salt Lake and to a shrine within the proposed Fence Lake surface coal mine area and to other shrines to the west. These trails are identified in the report as the Acoma Salt Trail (Proposed Mining Plan: page 4-32, and as the Acoma Wenoma (Proposed Mining Plan: page 4-31). Our religious pilgrimage trail must not be destroyed and we must continue to have free and permanent access to our shrines and to Salt Lake. The tribal shrine inside the proposed coal mine area has already been identified and must not be disturbed. The Acoma Salt Trail has been identified to the best of our knowledge on the ground. However, for certain other places, we are still in the process of determining locations and effects. Thus, we protest that up to 6,300 linear feet may be permanently destroyed by coal mining, by the construction of coal operation facilities, and by the railroad development (Proposed Mining Plan: page 4-32). The mining plan indicates that our religious pilgrimage trail will be sacrificed for coal mine development. We are insulted and we vigorously protest by the suggestion that **"perhaps religious ceremonies, performed by the appropriate tribal practioners, could lessen the effects"** (Proposed Mining Plan: page 4-32).

CULT 10-D and ESTH 10-A We are very concerned about access to and through the proposed coal mine area. The mine facility operation, access and primary haulroads, the coal dragline erection site, the powerlines, the railroad corridor and loop, and drainage and sediment control structures, will interfere with access to our shrine and with the ability to freely and safely pass through the area. These issues must be carefully considered. We object that we have to notify SRP that we intend to make use of our pilgrimage trail (Proposed Mining Plan: page 4-31). This is contrary to free practice of religious rights. Furthermore, we assert that noise and clamor from mining operation and operation of the railroad will interfere with our quiet reflection and peaceful practice of our religious prayer at our shrine. We object that our requested forty acre site around the shrine can not be set aside (Proposed Mining Plan: page 4-33)

CULT 10-E Furthermore, we remind you that our pilgrimage trails across the mine area have been recommended by the Bureau of Land Management as being eligible for listing in the National Register of Historic Place (Proposed Mining Plan: page 4-30) and the possible ramifications of such designation.

HYDRO 10-B and AIR QUAL 10-A The Zuni Salt Lake must not be harmed in any former fashion in its quality and quantity of surface and groundwater resources. We will insist that the quality and quantity of water be carefully monitored and tested on a regular basis to ensure its consistency. We have urged that monitoring wells be developed nearby. Environmental effects of the air from fugitive coal dust, coal transportation, and from vehicle travel from the mining activity must not contaminate the water quality. Air quality monitoring at or near the Salt Lake must be performed regularly.

WILD 10-A As noted in the section under raptors, there are golden eagle nesting sites (Proposed Mining Plan: page 3-9). The use of eagle and eagle feathers play a significant role in our cultural and religious observance. We are therefore totally opposed to their destruction due to the proposed coal mining.

GEN 10-A We disagree that the need for a non-use value study was eliminated from any and further consideration (Proposed Mining Plan: page 5-5) and strongly feel it should be reinstated.

Thank you for your attention and positive response to our concerns.

Ron D. Shutiva, Governor
Pueblo of Acoma

Exhibit - 11

Rec 6/2/95
7:45 pm

PUEBLO OF ACOMA
"THE SKY CITY"
P.O. BOX 309
ACOMA, NEW MEXICO 87034

OFFICE OF THE GOVERNOR

TELEPHONE 505/552-6604
FAX 505/552-6600

STATEMENT OF STANLEY PAYTIAMO,
CHAIRPERSON PUEBLO OF ACOMA WATER COMMISSION BEFORE
THE DEPARTMENT OF THE INTERIOR OFFICE OF SURFACE MINING
FRIDAY JUNE 2,1995, 7:OO P.M.
CITY COUNCIL CHAMBERS AT CITY HALL
600 WEST SANTA FE AVE.,
GRANTS, NEW MEXICO

My name is Stanley Paytiamo, Chairperson, Water Commissioner, and Environmental Protection specialist for Pueblo of Acoma. First, and in line with our Indian Custom, may I extend to every person present, a sincere heartfelt handshake, I also bring to you the friendly greeting of the Acoma people.

Mr. Chairman and Members of the Committee, Pueblo of Acoma Water Commissioners appreciates the opportunity to appear before you today to discuss the Fence Lake mine, which is a proposed surface coal mining operation that would be located northwest of Quemado in Catron and Cibola Counties, New Mexico.

Our tribe has provided previous comments at meetings with the Bureau of Land Management, at hearings held on the proposed coal mining, application with Salt River Project. We continue to assert our concerns, some of which are repeated here for emphasis.

CULT 11-A HYDRO 11-A Our concerns cover archeological resource disturbances, impacts on traditional cultural properties, opposition to the damage of our prilgimage trails, impacts on water resources and especially any mining affects on the Zuni Salt Lake.

1

CULT 11-B To, this day Acoma believes and does its traditional religious practices and still travels on pilgrimages sever times a year to Salt Lake and to shrine within the Fence Lake coal mine area and to other shrines to the four directions including west. These trails are identified in the report as the Acoma Salt Trail and as the Wenima Trail and Acoma Wenoma. Our religious pilgrimage trail must not be destroyed and we must continue as we have done for the last 1,000 years to have free and permanent access to the shrine within the mine area and across it to Salt Lake. The Pueblo of Acoma Water Commissioners protest over a mile of the Acoma Salt Trail will be permanently destroyed by coal mining, by the construction of coal operation facilities, and by the railroad, and the railroad development. If to be destroyed allowed and after coal is taken sure it must be restored to its original form by reseeding with grass.

HYDRO 11-B and AIR QUAL 11-A The Zuni Salt Lake must not be harmed in its quantity and quality of surface and groundwater resources. We insist that the quantity and quality of water be carefully monitored and testes on regular basis. We urge that monitoring wells be developed nearby. Fugitive coal dust from mining activity, from coal transportation from vehicular travel, all must not contaminates water quality. Air quality monitoring at or near the Salt Lake must be done regularly.

In closing I want to mention a few environmental impacts from coal mining.

Environmental Impacts

In 1978, a special advisory committee on coal mining reported the dangers of increased coal mining and production to the Department of Health, education and welfare. They listed the following problems:[1]

GEN 11-A

- Underground mining of coal is associated with a high rate of worker accidents and chronic debilitating lung disease.
- Surface mining disrupted natural landscapes, and drainage from mine tailings and abandoned mines may damage water and wildlife.
- Coal combustion releases carbon dioxide into the atmosphere, and at extreme levels this could modify the climate, resulting in serious disruption.
- The release of many pollutants can increase the number and severity of bronchial attacks and can contribute to chronic respiratory diseases.
- Air borne pollutants contribute to the formation of "acid rain" which is already decreasing fish populations, damaging crops and reducing the productivity of agricultural and forest areas.
- The mining of coal releases low-level radiation which also has a cumulative effect
- Even very low levels of air pollution can affect visibility and degrade the beauty of an area. This is unacceptable to many people, particularly in the less-developed areas of the west.
- Unburned residues trapped in pollution contain trace elements that, when retained in land disposal systems, can find their way into drinking water supplies or soils, become incorporated into living organisms and have a poisonous affect on humans.

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[1] Americans For Indian Opportunity "Messing With Mother Nature Can Be hazardous To Your Health?" page IV-A-1-3)

GEN 11-A

The specific environmental impacts of coal strip-mining can be severe if there is not an adequate plan in place to reclaim the of land. Not only is the land and soil disturbed but there are also significant impacts on the water system brought on by strip-mining. Some principle affects on the water system that may result from mining are:

1. Changes in vegetation species that may change water use.
2. Changes in stream flow that may affect volume and quality.
3. Erodibility of soils causes by disturbances associated with mining.
4. Changes in sediment yields from mined areas that may affect downstream areas.
5. Contamination of groundwater aquifer's.

Changes in water quality due to mining may result in any one or combinations of several detrimental affect, these include:

a) harm to human health;
b) harm to livestock or crops;
c) harm to fish and wildlife;
d) tastes and appearance problems;
e) physical damage (i.e., premature filling of reservoirs resulting from increased sediment loads in streams).

Thank you for this opportunity I will be glad to answer any question you may have.

Exhibit - 12

John J. Marron
1111 Roadrunner Ln NW
Albuquerque, NM 87107
Ph. (505) 345-4006
June 8, 1995

Charles E. Sandberg, Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

95-06-12-11

Attention: Dr. Robert H. Block

Dear Dr. Block,

HYDRO 12-A

I have received the documents regarding the Fence Lake mine (New Mexico-Arizona) impact statement. My principle concern regards the lowering of the water table. I have four wells at this time on my ranches in Catron county NE of Quemado, NM, which could be seriously affected if the water table was reduced. Water is critical in this area and every effort should be made to not disturb the limited supply. It would seem appropriate that BLM and the mining company be held accountable for costs and damages to surrounding landowners if the optimistic projections in the impact statement should prove wrong.

Sincerely,

John J. Marron

Exhibit - 13

Southwest Center For Biological Diversity

June 12, 1995

[illegible] CENTER
[illegible] PM 12:09
[illegible]-WSC

95-06-20-03

Charles Sandberg
Acting Regional Director
Office of Surface Mining
Western Regional Coordinating Center
1999 Broadway, Suite 3320
Denver, CO 80202-5733
ATTN: Dr. Robert Block

TO WHOM IT MAY CONCERN.

Attached are comments on the Proposed Mining Plan and Permit Application for the Fence Lake Mine DSEIS and the original EIS process:

GEN 13A

1. The No-Action alternative has never been adequately assessed in any of the decision documents. At several points in the decision documents it is stated that it would be uneconomical for SRP to conduct the mine without federal coal yet no evidence is provided that this is the case. Certainly we can understand that it may be more profitable to mine with the Federal Coal, but to simply reject a smaller non-Federal mine as unviable with no proof and then to reject this as an alternative is clearly a violation of NEPA and APA and supports our request that the leases be canceled and the EIS process be begun anew.

GEN 13B

The DSEIS states on page vi "However if the Director, or his designee, of OSM does not approve the permit application as it relates to the Arizona portion of the railroad corridor, and as a consequence, OSM does not issue a permit to conduct surface coal mining and reclamation operations along that Arizona portion, SRP could not operate its proposed railroad corridor in New Mexico and Arizona; accordingly it would be unable to transport coal from the Fence Lake mine to its Coronado Generating Station. Therefore, disapproval of the life-of mine mining plan to mine Federal coal in New Mexico and disapproval of the permit application to conduct operations along the Arizona portion of the New Mexico/Arizona railroad corridor, would actually result in no mining of private and State-leased coal as well as no mining of federal coal". This reasoning is completely false and flawed and is one of our major points of contention with the DSEIS. Numerous existing roads could be used to haul the coal to Coronado. The absence of a rail corridor would not preclude the development of the mine at all. In addition, OSM has provided no evidence that the mine would not be economically viable without the Federal coal. The flawed circuitous and evasive nature of the analysis leads us to wonder who OSM works for SRP or the American public. The evidence of pre-determined outcome in favor of approving the mine is so pervasive throughout the documents that we must request that the leases be canceled and that the EIS process is begun anew.

GEN 13-C

2. The DSEIS limits the alternatives to approve or disapprove and then states basically that since SRP already holds leases for coal that disapproval is not viable and therefore recommends approval. A reading of the original EIS shows that there too no real consideration is given to disapproval. In sum a pre-determined outcome has been executed throughout the process. The DSEIS is merely an attempt to 'patch up' the glaring deficiencies in the NEPA while maintaining the pre-determined outcome planned all along. SRP's leases should be canceled and the EIS process begun again so that an objective decision can be made through the NEPA process.

GEN 13-D

3. The EIS & DSEIS fail to consider the very real possibility of future expansions to the mine and the resultant environmental effects. We are suspicious that OSM and BLM are attempting to segment analysis to avoid full disclosure of effects up front.

GEN 13-E

4. The EIS and DSEIS refuse to analyze the effects of air pollution from the SRP St. Johns Power plant. Clearly the actions of mining coal and moving by rail to the Power plant and burning the coal at the Power plant are completely linked. OSM states that this analysis is inappropriate because SRP could get its coal from many sources, but in fact SRP will be getting its coal from the Fence Lake mine, the same mine the DSEIS is supposed to cover. The Coronado Generating Station EIS done by BUREC in the 1970's isn't current nor does it deal with air pollution impacts adequately. OSM can state what it pleases but the mandates of NEPA and implementing regulations are clear, interconnected.

interdependent actions are to be analyzed for their effects to the environment. The DSEIS violates NEPA and the APA.

GEN 13-F

5. The purpose and need for the Fence Lake Mine has never been adequately established in the DSEIS or the original EIS. The original EIS is so weak and flawed that the attempt to patch it up with the supplement is inappropriate, disingenuous and illegal. The entire process has never given adequate consideration to 1. Using alternative energy sources for SRP's generation instead of coal. In fact does the public need the power to be generated by SRP at their Coronado station at all? 2. The documents do not discuss whether the coal at Fence Lake is low polluting, high polluting medium etc. 3. The existence of a mine that is currently supplying SRP with coal is never factored in to the equation. Will this supply run out soon, is the Fence Lake coal somehow cheaper or better-why isn't this information disclosed. In fact if there is an existing viable source of coal why dig two giant pits in the Earth, when one will do? Again the OSM can state that these things are outside the scope of the project etc., etc., but they are not -NEPA and APA prohibit such arbitrary and capricious determinations.

GEN 13-G

6. We object to the transference of lead agency status from BLM to OSM. This is both inappropriate and illegal. We are very confused by this shift and question the Agencies motives in doing so. In fact, OSM has printed its logo on the outer cover page re-print of the original DEIS. Perhaps OSM didn't think anybody would notice that a shift of lead agencies has occurred half way through the process. This violates NEPA, APA, CEQ regs. And other laws and policies

CULT 13-A

6A. Building a mine in the sacred Neutral Zone is completely inappropriate and disrespectful of Native American cultures. Obviously the area has tremendous cultural and historical importance to numerous Native American cultures and thus all Americans culture and history are denigrated by this ill-planned ill-fated project. Page 4-29 of the DSEIS brushes off impacts to the Neutral Zone in the following manner "The Neutral Zone is a phenomenon directly associated with the existence and use of the Zuni Salt Lake. Since the definition of the Neutral Zone varies between the tribes and individual tribal members, it is not possible to clearly identify its exact location or boundaries. By definition, therefore, the Neutral Zone is not a cultural property. Disturbance to the Neutral Zone would be restricted to those activities authorized under the permit and operations plan". This callous, almost racist treatment of such an important area is completely inappropriate for a Federal Agency in 1995. Clearly the Neutral Zone is in fact a cultural property, likely a Sacred Site. It is somewhat ironic that Native Americans treated plants specially in this zone and that the Federal Government will authorize a mine to rip up and gouge out the very ground. The Action violates the National Historic Preservation Act.

CULT 13-A

LAND USE 13-A

7. The DSEIS emphatically states at several points that after reclamation livestock grazing will be the dominant use of the area. Firstly the land is not even managed by the agency making this promise, secondly it is inappropriate and illegal to make commitments like this in the face of the BLM's multiple-use mandate under FLPMA. This too like the mine permitting and NEPA process reeks of pre-determined outcome.

WILD 13-A

8. The Mine will impact several known Golden Eagle territories. The buffers set aside for the eagles are totally inadequate. Regardless of what policy or guidelines sets these micro-buffers Golden Eagle territories are in the thousands of acres. The mine will effectively destroy several territories violating the Bald Eagle Protection Act and the Migratory Bird Treaty Act as well as several BLM directives. The habitat usage patterns and needs of golden eagles should be addressed in the decision documents.

WILD 13-B & VEG 13-A

9. We are concerned that surveys for TES species have not been conducted at the proper times of year to successfully document their presence.

GEOL TOPO 13-A & Appen. A-4

10. How will the topography of the mined land be different post-reclamation? Will the land be lower as a result of lost under burden (i.e. coal).

LAND USE 13-B

11. Grazing leases need to be canceled or adjusted to deal with corresponding loss of acreage available to grazing from mining. How many livestock use the area now? What level of reduction will be necessary to offset loss of available acreage?

WILD 13-C

12. A Mexican Spotted Owl (MSO) was spotted in the project area. Surveys should be conducted to determine whether nesting territories occur in the vicinity.

CULT 13-B

13. The documents do not adequately disclose impacts to cultural properties. There is no evidence that Tribal Elders or Traditional have been consulted regarding the possible spiritual and physical effects of the mine. It is not enough to contact the BIA or tribal council or publish notices in newspapers. The culture that values the and needs the land the most, the Elders or Traditional are the least likely to be represented or informed by the aforementioned.

GEN 13-H
GEN 13-I
GEN 13-J
GEN 13-K

14. How many years can the Coronado generating station run on the coal to be produced by the mine? What percent of its needs will be filled by this mine? Is the plant planning an expansion of generation capability in the near future? When will the mining project begin if approved? How much more coal is in the area? Are there other leases or applications for leases in the area?

GEN 13-L

15. The mine's potential effect on Wilderness Study Areas is not addressed.

GEN 13-M

16. The mine will be inside the boundaries of the Fence Lake Special Management Area. the impacts to the SMA have not been adequately specifically addressed.

GEN 13-N
(Appen. B)

17. The cumulative effects of this and other projects in the area have not been adequately assessed.

GEN 13-O

18. In the original FEIS in the BLM's response to comments of The Navajo Nation #15-1 it states that "The decision to issue a federal coal lease does not affect the Mckinley Mine because additional coal is required over and above that supplied by Mckinley Mine. This would indicate that in fact the Fence Lake Mine will allow SRP to expand its output from the Coronado Generating Station furthering our premise that the mine and the generating station are interconnected and interdependent activities that must be analyzed together in this Nepa process.

GEN 13-P

19. The project violates numerous laws, policies and Executive Orders including the one dealing with Environmental Justice. Other sites that are not as culturally important could be mined to obtain coal for SRP. By insisting that this site must be mined functions as racism against Native American Cultures. The project is an affront to the environment and to people violates numerous laws and should

GEN 13-Q

be scrapped. If however the project goes forward, the leases should be canceled and the EIS process should be begun again this time without the thinly veiled pre-determined outcome exhibited throughout this process.

HYDRO
13-A &
AIR
13-A

20. The impacts to hydrology, water issues and air quality have not been adequately addressed.

GEN 13-R

21. The total amount of coal to be mined increased from 52 million tons in the original EIS to 81.3 million tons in the DSEIS. This large increase is further indication of OSM's attempt to segment the impacts through different mini-analysis rather than contain the full massive impacts of the mine in one clear coherent document.

GEN 13-S

22. The mitigation offered in the EIS is completely inadequate for a project of this massive scope and impact.

Thank you for your thorough and careful consideration of our comments.

Cordially,

Peter Galvin

Exhibit - 14

Arthur Mogilefsky
P.O. Box 1397
Cedar Crest, NM 87008
(505) 281-7129

June 14, 1995

95-06-16-11

Dr. Robert Block
Office of Surface Mining
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

RE: Fence Lake Mine Project - EIS

Dear Dr. Block:

I have the following questions and comments concerning the EIS for the poposed Fence Lake Mine Project:

1. Air Quality:

AIR QUAL 14-A

a. **Wind Monitors.**

The EIS indicates that the Applicant has agreed to place three, (3), wind monitors to measure fugitive dust emanating from the proposed mine site. It would seem that in addition to current locations monitors should be placed to measure dust Southeast and Northwest of the mine site. These are the directions of the prevailing winds according to data produced by MMD.

Whatever protection the monitors were designed to afford should benefit all areas surrounding the permit site.

AIR QUAL 14-B

b. **Vehicle Poliution.**

There is no mention in the EIS about carbon monoxide and other emissions from trucks and other gasoline driven equipment at the proposed mine. When the mine is in full operation can you estimate the amount of such pollutants? Are the trucks equipped with catalytic converters or other smog reducing equipment? If not, can they be modified to reduce harmful emissions?

AIR QUAL 14-C

c. **Ambient Air Quality.**

The EIS states that the concentration of PM10 off site would be twenty-five, (25), micrograms. The national standard is fifty, (50), micrograms. There are no up to date figures in the EIS comparing these figures to air quality in other known locations.

Can you advise what the present ambient air quality measured in PM10 is in the following locations:

Los Angeles, California; Albuquerque, New Mexico; Show Low, Arizona; Phoenix, Arizona; Roswell, New Mexico?

ESTH 14-A

d. **Sedimentation Ponds:**

What types of offensive odors from the proposed mine ponds can we expect and what measures will be taken to mitigate any odors that may arise?

ESTH 14-B

e. **Light Pollution:**

New Mexico is known nationally for its clear night skies. Local cities and counties are passing ordinances to control light contamination at night.

The proposed mine will be operating during hours of daylight and darkness. Will a condition of the permit be that the Applicant take all reasonable and necessary steps to avoid light contamination during nighttime operations?

2. Transportation Network:

TRANS 14-A

a. The map of the transportation system surrounding the mine project in the EIS, and the map presented at the public hearing in Albuquerque on June 3, 1995 are in conflict, particularly as they relate to county road number A034. Can you clarify this discrepancy?

3. Socioeconomic Effects:

a. The first paragraph on Page 4-23 of the EIS Volume I states:

> "Operation of the Fence Lake Mine over its scheduled 38-year production life would make the project the **largest single source of wage and salary income in Catron County** and a significant contributor to the economy of the study area. Employment would range from 74 jobs during the first year of operation to 134 jobs during years 3 through 40. It is estimated that the payroll would amount to $4.7 million per year."

SOCIO ECON 14-A

QUESTIONS:

i. How much of the wage and salary income will go to Catron County residents employed at the proposed mine?

Page Three
June 14, 1995

SOCIO ECON 14-B ii. How many of the estimated number of jobs will go to Catron County residents?

SOCIO ECON 14-C iii. Has anyone on your staff ever made any statements that might lead residents of the Quemado area to believe that the proposed mine would benefit them economically? If so, what were those statements?

Thank you for reviewing this letter and for your outstanding cooperation in providing information and education about the proposed mine and permit process.

Sincerely,

Arthur Mogilefsky
Arthur Mogilefsky

AM/sr
cc: Bill Sanderford, New Mexico MMD
c:\wp51\mac\mine

Exhibit - 15

State of New Mexico
Commissioner of Public Lands
310 OLD SANTA FE TRAIL P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

RAY POWELL, M.S., D.V.M.
COMMISSIONER

(505) 827-5760
FAX (505) 827-5766

June 19, 1995

95-06-23-10

Charles E. Sandberg, Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

Attn: Dr. Robert H. Block

Dear Dr. Block:

Thank you for sending us copies of the Draft Supplemental Environmental Impact Statement (EIS) OSM-EIS-31 for our review and comments.

GEN 15-A

The alternative preferred by the Office of Surface Mining Reclamation and Enforcement (OSM), the Bureau of Land Management (BLM) and the New Mexico Mining and Minerals Division (MMD) would make available for mining, State coal leases which constitute the majority of the area and coal proposed to be mined. However, one of the tracts of State lands (Section 10, Township 4 North, Range 17 West) included in the proposed permit boundary and mining area has not been leased by Salt River Project Agricultural Improvement and Power District. This tract is still considered open for leasing.

Obviously, the State Land Office is concerned about the impacts this proposed mine will have on the affected State lands as well as adjacent lands, and we have an obligation to ensure complete utilization of the mineral resource. The revised permit boundary and map depicting pit disturbance limits in the area of Section 16, Township 4 North, Range 17 West apparently exclude State coal reserves in that section. This exclusion of State mineral resources may, in effect, sterilize the coal which the original Environmental Impact Statement indicated would be included in the mining area. We question why Sections 16 and 33 were deleted from the permit application, when they were included in the original EIS. Although none of these Sections (10, 16 or 33) are currently under lease, that fact apparently did not impact the decision to retain Section 10 within the permit boundary. It is imperative to require full utilization of the mineral resource and to prevent sterilization of coal reserves in and adjacent to the proposed mine.

As for an analysis of the adequacy of the environmental impacts that have been considered in this EIS, we concur with the agencies' preferred alternative. If possible, we would like to receive a copy of the Resource Recovery and Protection Plan, so that we can analyze how coal recovery on Federal lands relates to coal recovery on State lands.

We appreciate the opportunity to comment on the supplemental EIS and to continue discussions with Salt River concerning rights-of-way for the railroad corridor. I expect they will also contact us in the near future concerning competitive leasing opportunities for the requisite coal lease(s). If you have any questions, please contact Jami Bailey, Deputy Director of the Oil, Gas & Minerals Division, at (505) 827-5745 or Dwain Glidewell, Director of Surface Resources, at (505) 827-5866.

Sincerely,

Gary Carlson

Gary Carlson
Assistant Commissioner for Mineral Resources

GC/JB

xc: Bob Jenks
Dwain Glidewell
MMD
Salt River Project

Exhibit - 16

June 21, 1995

Charles E. Sandberg, Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, CO 80202-5733

95-06-27-02

Attn: Robert H. Block

Dear Dr. Block,

This is my comment on the draft supplemental Environmental Impact Statement (SEIS) on a mining plan for Salt River Project's (SRP) Fence Lake coal mine.

According to the SEIS, Zuni Salt Lake is a sacred site to a number of American Indian tribes and is located nine miles from the proposed mine permit area and three miles from the proposed railroad corridor. This will have a severe impact. When OSM states explosions will occur, they say "short term". I do not feel
GEN 16-A 50 years of blasting twice a day is at all short term. Also the
ESTH 16-A noise and sight of draglines is very detrimental to ones spiritual well-being. This sacred land and sacred Zuni Salt Lake must not
GEN 16-B be harmed in anyway. The "state" has proven many times it is very lax at considering tribal values, as seen nearby at mining sites on the Navajo.

GEN 16-C I request that no permit be issued to the SRP for the proposed Fence Lake Coal Mine because the OSM has not carried out its mandated responsibilities under the 1977 Surface Mining Control and Reclamation Act to bring coal mining operations in New Mexico and Arizona into compliance with the law, especially those operation on or near Native American lands.

GEN 16-D I also request that since there is no permit nor bond for the SRP rail that transports coal from the Back Mesa mine in northwestern Arizona to the Navajo Power Plant, SRP's rail be closed because as Bill Clark mentioned at the Gallup hearing, if SRP is negligent, and operating illegally without a permit or bond, a shut down should proceed. I also feel that if this has been ongoing for many years, what evidence do we have that anything SRP states is accurate and reliable.

GEOL 16-A The Zuni Tribe has a world famous agricultural program, and this coal mine will most probably damage the water, air and soil by the release of radioactive contamination from the mining process.

GEOL 16-A The information on radioactivity in coal mining that I have found is as follows:

*The average concentration of natural uranium in coal is about 0.7 pCi/g. This is actually less than the average concentration for background which is 1 to 2 pCi/g. However this is an average and concentration can be as high as 28 pCi/g. Therefore there should be a site specific investigation to determine the radioactive content of the mine in question.

*The average concentration of natural uranium in fly ash is about 10 pCi/g. This is more than 10 times higher than the concentation in coal and 5 to 10 times background for natural uranium.

Based on this information, an EIS should be conducted.

Sincerely,

Susan Diane

Susan Diane
All Peoples Coalition
144 Harvard SE
Albuquerque, NM
87106

Exhibit - 17

State of New Mexico
ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-0169

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

95-06-28-01

June 22, 1995

Charles E. Sandberg, Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733
Attention: Dr. Robert H. Block

Dear Mr. Sandberg:

RE: **PROPOSED MINING PLAN AND PERMIT APPLICATION, FENCE LAKE MINE, CATRON AND CIBOLA COUNTIES, NEW MEXICO, AND APACHE COUNTY, ARIZONA: DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT OSM-EIS-31, VOLUMES I&II, U.S. DEPARTMENT OF THE INTERIOR, APRIL 28, 1995**

The New Mexico Environment Department (NMED) staff comments below are transmitted in reference to the above-mentioned Draft Supplemental Environmental Impact Statement (DSEIS).

GROUND WATER QUALITY

HYDRO 17-A Based on the information provided on p. 4-12, Vol. I, of the permit application, the Department's Ground Water Protection and Remediation Bureau does not believe that a discharge plan would be required for this facility.

Water Quality Control Commission Regulation 3-105.H exempts waste rock (spoils) from mines from discharge permit requirements unless a hazard to public health may result. According to the discussion on p. 4-12, Vol. I, the only constituent that will exceed ground water standards is total dissolved solids (TDS), which is not considered a threat to public health. Therefore, based on the information provided, this exemption most likely applies to this facility and a discharge plan would not be needed.

SURFACE WATER QUALITY

HYDRO 17-B On p. 1-3, Vol. I, of the DSEIS, it is stated that the U.S. Army Corps of Engineers must issue a Section 404 permit before any activities affecting waters of the United States could occur. The document should also state, that as a condition of the 404 permit, 401 water quality certification must be obtained from the NMED.

WILD 17-A & VEG 17-A The map entitled *Railroad Corridor Figure 2* identifies a wetland to be crossed by the railway. Water quality certification for impacts to any wetland greater than ½ acre must be obtained from NMED. Any permanent loss of wetlands greater than ½ acre must be offset by the development of new wetlands at a 2:1 ratio.

SOIL 17-A & VEG 17-B On p. 3-3, Vol. I, it is stated that the surface water information has not changed substantially from the original draft EIS (DEIS), created in 1990. On p. 4-9, Vol. II, of the DEIS, it is stated that long-term increases in total suspended sediment could be expected from the increased erosional potential of the spoil areas. This long-term impact should be mitigated by requiring complete revegetation with enforceable provisions to ensure that potential increases are minimized.

HYDRO 17-C There was no discussion in the DSEIS on the impacts to water quality from the railway. According to the map entitled *Railroad Corridor Figure 2*, there will be 5 channel crossings. In addition, it appears that the rail corridor will closely parallel Carrizo Wash for most of the route. The document should contain an analysis of the potential increase in sediment loading to channels from ground disturbance associated with the creation of a railway.

HYDRO 17-D & GEN 17-A It is widely recognized that the utilization of Best Management Practices (BMPs) is an acceptable means for reducing/preventing water quality impacts from ground disturbing activities. Although there was some reference to the fact that BMPs will be implemented where needed at the mine site, there were no provisions to monitor the success of BMPs to ensure proper function. A comprehensive monitoring plan to track implementation and effectiveness of BMPs should be created prior to any ground-disturbing activities.

AIR QUALITY

AIR QUAL 17-A The air quality issues addressed in the DSEIS are primarily fugitive dust operations and Total Suspended Particulate (TSP) emissions from the coal mining operations.

The DSEIS indicates that the Bureau of Land Management estimated unmitigated TSP concentrations and no specific modeling for this mine was done (p. 4-3, Vol. I). The document uses modeling for two other surface mines to generalize to this mine. However, the rationale given in the DSEIS for making this generalization can hardly be considered sufficient.

AIR QUAL 17-B & GEN 17-B The DSEIS states that monitoring and a fugitive dust supression plan are required under the "permit" (p. 4-29, Vol. I). Since the Salt River Project does not have an air permit, it is not clear

what permit is it being referred to. The Salt River Project has filed a Notice of Intent (NOI) under Air Quality Control Regulation (AQCR) 703.1, dated October 16, 1986, to construct a small coal crushing and loadout facility near Quemado. This NOI, however, does not contain any monitoring or control requirements.

AIR QUAL 17-C The document also states that only TSP is monitored in the vicinity (p. 3-3, Vol. II). The location and owner of the monitoring site, however, are not specified. The closest Air Quality Bureau monitor is a PM-10 monitor at Grants, roughly 65 miles away. The statement in the DSEIS needs to be clarified.

AIR QUAL 17-D AQCR 702, Part II.A.1.b. states that coal mining operations are required by the New Mexico Surface Coal Mining Commission to have an air pollution control plan for fugitive dust emissions. This requirement is not addressed in the DSEIS.

AIR QUAL 17-E Finally, we should mention that representatives of the Salt River Project met with the Department's Air Pollution Control Bureau on February 14, 1995, to discuss air quality permitting requirements for the coal handling operations, which would consist of screening, conveying, and truck/rail loading and unloading. These operations will require an air quality permit under AQCR 702, Permits.

We appreciate the opportunity to comment on this document. Please let me know if you have any questions.

Sincerely,

Gedi Cibas, Ph.D.
Environmental Impact Review Coordinator

NMED File No. 900ER

Exhibit - 18

DONALD F. ERIACHO
Governor
BOBBY SHACK
Lt. Governor
ANDREW L. OTHOLE
Hd. Councilman
ARLEN P. QUETAWKI, SR.
Councilman

P. O. BOX 339
ZUNI, NEW MEXICO 87327

505-782-4481

RUEBEN GHAHATE
Councilman
HARRY CHIMONI
Councilman
AUGUSTINE A. PANTEAH
Councilman
JOBETH MAYES
Councilwoman

In reply refer to:

June 26, 1995

Mr. Charles E. Sandberg, Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, CO 80202-5733

95-06-28-09

Attn.: Robert H. Block

Dear Mr. Sandberg:

The Pueblo of Zuni has reviewed the "Proposed Mining Plan and Permit Application, Fence Lake Mine, Catron and Cibola Counties, New Mexico, and Apache County, Arizona. Draft Supplemental Environmental Impact Statement OSM-EIS-31", produced by your office. As you know, the Pueblo of Zuni has frequently commented on the proposed action and has, in its previous comments and statements, made certain requests regarding the proposed action. Our previous comments and statements, which are on file with your office, still stand, are incorporated herein by reference, and apply to the present draft supplemental environmental impact statement. We have the following additional comments on this draft supplemental EIS.

HYDRO 18-A

In a letter dated November 19, 1992, to then Secretary of the Interior Manuel Lujan from then Governor Robert E. Lewis, the Zuni Tribe explicitly stated that " the Fence Lake Coal Mine must not be permitted unless it is absolutely certain that no damage will occur to Zuni Salt Lake". The present draft supplemental EIS, while a slightly stronger statement than we have previously seen in print, does not allay our concerns. Throughout the draft supplemental EIS it is clearly stated that Zuni Salt Lake would experience negligible short and long term impacts to the quality and quantity of its ground water. Such assurances are inadequate, especially since this supplemental EIS does not seem to present a fair representation of the potential impacts to Zuni Salt Lake given the recent information contained in the Salt River Project's (SRP) Permit Application Package (PAP), the New Mexico Mining and Minerals Division's (NMMMD) Cumulative Hydrologic Impact Assessment (CHIA), and the U.S. Geological Survey Water-Resources Investigations Report 92-4004, "Geohydrology and Potential Hydrologic Effects of Surface Coal Mining of the San Augustine Coal Area and Adjacent Areas, Catron and Cibola Counties, New Mexico," written by Bob Meyers.

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HYDRO 18-B

In discussing the potential impacts to surface-water quantity (p. 4-8 and 4-9), the EIS states that the diversions and impoundments would result in increased groundwater recharge in these altered areas. However, it fails to mention the necessary resulting decrease in surface-water supply for recharge areas downstream of the permit area, as stated by Meyers (p. 31). Between the permit area and Zuni Salt Lake, outcrops of Mancos Shale and the Intertongued Dakota Sandstone may receive recharge from surface flows in Largo Creek. Since this formation is believed to be a groundwater source for the seep in the eastern rim of the maar (Meyers, p. 21; PAP, p. 12-33), then a decrease in recharge to this aquifer may decrease the amount of water supplied to this seep at Zuni Salt Lake.

HYDRO 18-C

The EIS presents drawdown effects of the Atarque and Dakota Sandstones' water-supply wells based on an average pumping rate of 85 gpm (p. 4-11). This rate merely represents the amount of water needed over the time period of mine operations at estimated maximum production levels. But it does not represent the actual or maximum pumping rates that might be used. The EIS should present the drawdown effects of these wells at full pumping capacity since this scenario is possible and would be the worst-case for determining potential impacts at Zuni Salt Lake. Both formations are believed to contribute water to the Lake (Meyers, p. 21; CHIA, p. 26).

HYDRO 18-D

Why does the EIS state that the Atarque Formation is "probably" present at Zuni Salt Lake (p. 4-13) when the PAP (p. 12-13, revised version) and CHIA (p. 26) both clearly state that it is present. Also, the breach of this formation by Largo Creek does not extend along the entire length of the creek and, therefore, does not create a complete hydraulic break between the mine area and Lake. Thus, pumping the Atarque Sandstone at the mine area may have an effect on the Atarque Sandstone at the Lake.

HYDRO 18-E

In discussing the drawdown effects of the Atarque and Dakota Sandstones' water-supply wells calculated with the Hantush-Jacob solution by SRP, the EIS does not mention the results of similar calculations done by Meyers and the NMMMD. Meyers used the Theis method to calculate drawdowns in the Dakota formation for a range of pumping rates and storativity values (p. 23-30). All combinations showed that an impact could occur at the Lake. The Theis method assumes that no recharge or leakage occurs between the confining layers (Mancos Shale and Chinle Formations) and the aquifer (Dakota Formation). The drawdown effects from this solution represent the worst-case scenario. On the other hand, the effects from the Hantush-Jacob formula represent the best-case scenario since the confining layers are assumed to leak water to the aquifer. The NMMMD used a version of this formula similar to the one used by the SRP and arrived at drawdown values between those of Meyers and the SRP (CHIA, p. 27). Thus, SRP, NMMMD and Meyers have presented potential drawdown effects that could be viewed as being optimistic, realistic, and pessimistic, respectively. Shouldn't this range of possible impacts be discussed rather than just the optimistic impacts? Furthermore, all these methods assume that the aquifers are homogeneous, isotropic, constant thickness and an infinite areal extent, ie. no boundaries. Real aquifers rarely meet these criteria, and the mentioned partial breach of the Atarque Sandstone and westward thinning of the Dakota Sandstone represent possible barrier boundaries, which would increase the rate of drawdown in these areas.

HYDRO 18-F "Because of the lack of regional data, it has not been possible to create a quantitative hydrogeological model of the CHIA region. Well data only exists for the region in close proximity to the SRP current operations. Determination of boundary conditions and inhomogeneities within the aquifers is important. Given these requirements, it is not possible to investigate the large region selected for CHIA with any degree of realism (CHIA, p. 39)."

HYDRO 18-G The data and time needed to fully understand the regional hydrogeologic system would be cost prohibitive. Thus, an effective monitoring system should be implemented to detect potential impacts to the Zuni Salt Lake. We continue to demand that a monitoring system, that is acceptable to the Pueblo of Zuni, be installed and made operational prior to the issuance of a mine permit. This monitoring system must be established under an agreement that provides for the cessation of ground water use by SRP should some agreed upon threshold of change in monitoring well data be reached. We wish to see such protections noted in the supplemental EIS. For the most part the EIS ignores discussing the adequacy of the presently proposed monitoring system of SRP. We feel this is an appropriate issue for discussion in the EIS.

GEN 18-A The Tribe's position with respect to the Fence Lake Coal Mine has been consistent from the beginning. The Secretary should not approve the Mine Plan and New Mexico should not issue a mining permit unless it can be determined (by other than SRP or its contractors) that mine development and operation will have no impact to Zuni Salt Lake.

HYDRO 18-H It now appears that OSM cannot provide an opinion on projected impacts that complies with the Tribe's requirements. In the draft EIS, OSM concludes: "Both the short and long-term impacts of the proposed Fence Lake Mine on the waters of the Zuni Salt Lake would be negligible" Draft Supplemental EIS at 4-14 (emphasis added). The Tribe demands no impacts and cannot suffer "negligible" impacts.

HYDRO 18-I While some may say that OSM's statement on "negligible" impacts is the 'strongest' opinion, OSM can offer under applicable federal EIS procedure, other portions of the EIS appear to discredit that position. For example, OSM can provide stronger opinion on hydrologic impacts elsewhere; "Mining should have no impact on the Yeso Formation"; "Effects of mining on the coal aquifer

cannot be transmitted to the Zuni Salt Lake"; "[P]umping the Atarque Sandstone at the mining operations should not have an effect on the Atarque Sandstone at the lake"; "Any changes in the quality or quantity of the waters of the alluvium at the mining operations that could be transported downstream in Largo Creek would not be transferred to Zuni Salt Lake owing to the lack of hydrologic connection".

HYDRO 18-J These statements by OSM in the draft EIS all have greater exactitude than OSM's conclusory statement that impacts from mining "on the waters of Zuni Salt Lake would be negligible." No Impact is not the same as a negligible impact. We incorporate the attached letter of December 29, 1993, from Oliver S. Page of Stetson Engineers to Governor Robert E. Lewis as further comment to this draft supplemental EIS, as we believe that issues in this letter have not been resolved.

The Tribe appreciates the work OSM performed in reviewing available data and in providing its opinion on impacts.

HYDRO 18-K The OSM stated, in a meeting with the Zuni Tribal Council on August 16, 1994, that the OSM takes its trust responsibilities to the Zuni Tribe very seriously. We expect this to be the case, and thus we expect the protection of the quantity and quality of water in Zuni Salt Lake to be guaranteed in writing and implemented through an adequate monitoring system that would absolutely protect the Lake from harm caused by the development or operation of the mine.

AIR QUAL 18-A Air quality (p. 1-8) is an issue of concern, given that the poorer air quality in the area resulting from the mining may affect the Zuni Salt Lake. No specific air quality modeling has been done for the proposed Fence Lake Mine (p. 4-3). Why? We believe this is critical if we are to understand the issue of air quality and how changes in air quality may affect Zuni Salt Lake. We also note (p. 4-3 and 4-5) that you use modeled data for the Black Mesa Mine. Why would you use modeled data when you surely have actual data from this mine that has been in operation for many years? And how do the Black Mesa models compare with reality? This would important for our assessment of Fence Lake Mine models. In addition you state (p. 4-29) that the impacts of fugitive dust levels at Zuni Salt Lake would, in all likelihood, be very minor. This is not acceptable to the Tribe. The impact must be zero.

GEN 18-B You state (p. 5-8) that you do not see any necessary dependence of the Coronado Power Plant on the Fence Lake Mine coal. Why then, would you be considering the environmental effects of a coal haul railroad between the mine and power plant if this is the case? We see a clear link between the mine and the power plant, and a clear link between the coal mine at Fence Lake and the Coronado power plant. The 1990 BLM EIS (p. 1-2) said that the Fence Lake Mine is planned as a "primary supply" for the Coronado Generating Station. Consequently, we see a direct link between the mine and

GEN 18-C emissions at the power plant as you state on p. A-1 and A-2. If the coal source for the power plant changes from McKinley Mine to Fence Lake Mine, will there be any change in the type and quantity of Coronado power plant emissions? This, we believe, is a reasonable linkage and a reasonable issue that must be addressed in this supplemental EIS, especially when we are discussing the Zuni Salt Lake and its water quality.

GEN 18-D We are concerned about the potential impact of vandalism to Zuni Salt Lake as a result of the proposed mine and increased visitation (p. 4-30). Visitation to Zuni Salt Lake is unlawful without express prior written permission from the Zuni Tribe. We believe that increased law enforcement should be required because of this potential impact to Zuni Salt Lake in addition to the other measures suggested in the draft supplemental EIS.

We have made numerous statements prior to issuance of this draft supplemental EIS that cultural resources are of great concern to the Zuni Tribe. We do not accept all of the cultural resources conclusions reached in the draft supplemental EIS.

CULT 18-A To state that the Neutral Zone is not a cultural property because there are differing boundaries set by tribes and individual tribal members and thus a boundary cannot be drawn is simply not true. As you are well aware, no archaeologist would draw the same exact boundary on almost any archaeological site because of different interpretations of where that boundary should be drawn. If a boundary had to be identified for the Neutral Zone then you could take the sum of all identified boundaries at their maximum extent and have that be the boundary. Essentially you are declaring the Neutral Zone to not be a property based on a technicality, because if the Zone were made a property and its maximum extent identified, it would be impacted and affected by the mine and transportation corridor.

CULT 18-B Trails have long been an issue of great concern to Zuni. To say that impacts to trails would be negligible to minor (p. 2-7) is unacceptable. As you state (p. 3-33) all known trails can be interpolated to cross the railroad corridor, and indeed they must given the positively identified traces (p. 4-25). We have stated before, and we state again here, that any impact to Zuni trials is unacceptable because there is no way to mitigate impact to a trail. We wish to note that if, as you state (p. 4-30) that all of the named trails have been determined eligible for listing on the National Register, then we do not understand what you mean by determining the eligibility of individual segments pending ground verification. If the trail is eligible then the entire trail is eligible. Determining its exact location along certain segments may be needed, but, as far as we can see, the issue of eligibility is settled. We are in disagreement that further methods to identify trails would include subsurface excavations (p. 4-31). This matter has not been fully discussed between the Tribes, agencies, and SRP, and is not settled yet, at least to Zuni's satisfaction. You note (p. 4-30) that these trails have been cut already by previous developments. Most, if not all of these developments were prior to the consultations now required, thus this issue we believe is not applicable, and the impact is not known as it has not been formally assessed. Regardless, the trails are all extremely significant and to cut them with the coal haul railroad as assessed in this EIS is unacceptable without completing full consultations and finding solutions acceptable to Zuni regarding this issue.

CULT 18-C The potential (and expected) impact to human burials and their associated funerary objects is a very serious issue for Zuni. As we have stated before on a number of occasions, we believe that the mine should not be permitted until an acceptable burial MOA is in place, thus we disagree with the notion that if the MOA is not in place before mining starts then burials will be dealt with under applicable laws (p. 3-34). To state (p. 4-24) that procedures will be implemented to ensure that no cultural resources are adversely affected cannot be the case. It is the policy of the Advisory Council on Historic Preservation that any impact to a human burial is an adverse impact. To state (p.4-35) that impacts to human remains are expected to be minor over the short term and negligible over the long term is simply not the case. Any disturbance of human remains is a serious impact to Zuni cultural beliefs, and is obviously a major impact as determined by the Advisory Council on Historic Preservation. We note that it is the Native American Graves Protection and Repatriation Act not the American Indian Graves Protection and Repatriation Act (p. 4-33).

CULT 18-D Cerro Prieto is indeed a traditional cultural property of Zuni (p. 3-34), but to state (p. 4-33) that obtaining gravel on its flanks would be negligible impact is, in our opinion, erroneous. We note that view shed is an integral part of a TCP such as this, an issue you fail to discuss. To discuss this issue in terms of archaeological sites (p. 4-28) and not TCPs such as Cerro Prieto is a serious flaw in the draft supplemental EIS and needs correction to adequately assess impacts to TCPs.

CULT 18-E The fact that the BLM and New Mexico SHPO have not found any of the archaeological sites to be eligible to the National Register as TCPs (p. 3-34) demonstrates a fundamentally flawed understanding of this issue. To ignore the importance of these cultural resources as TCPs to the Tribes minimizes the impact of mining on these resources, and paves the way for archaeological excavation as an acceptable strategy for the mitigation of impact. We believe that this bureaucratic maneuvering trivializes the tribal perspective and thus trivializes the actual impact of the proposed mine. As you state (p. 3-35) consultations are ongoing with tribes concerning TCPs. We do not understand how the EIS can be complete until you can assess the actual impact of the proposed mine on TCPs.

CULT 18-F Increased vandalism to archaeological sites and TCPs as a result of the mine and population growth, etc., is an indirect impact that must be much more fully and carefully considered in the draft supplemental EIS. As with the issue of indirect impact at Zuni Salt Lake, there needs to be a concerted effort in both education and cultural awareness, plus a serious law enforcement effort to prevent this kind of illicit activity.

Mr. Charles E. Sandberg
June 26, 1995
Page seven

CULT 18-G If, as you state (p.1-4) that NEPA requires considerations of both context and intensity to determine significance and thus impact, then we believe that the Zuni cultural context of the Zuni Salt Lake, human burials, trails, and other TCPs are inadequately addressed in this draft supplemental EIS. We believe that this oversight needs to be rectified before this EIS can be finalized.

GEN 18-E In addition to the issues of great significance to Zuni that we have raised above there are some other issues raised by the EIS that we find unclear or poorly researched. For example we note that you state (p. 4-1) that this team has not analyzed the environmental consequence of the mine in isolation but you explicitly eliminate linking this analysis with the Coronado Generating Station (see above). We find this incongruous.

SOCIO ECON 18-A Employment and housing is an issue that seems to be unresolved. On p.4-22 you state that SRP does not plan an intensive effort to obtain local hires, yet on p.4-36 you state that because you expect employees will be drawn from the region you doubt there will be any substantial increase in the population of the towns surrounding the proposed Fence Lake Mine. On p. 4-38 you state that some impacts could occur from excessive demand for housing from influxes of construction workers. This needs to be clarified. While you believe that the mine will be good for the local economy, you do not discuss whether or not the inevitable end result of the mine closing will be a collapse of the local economy as happened in Grants when the uranium mining ceased (p. B-2), and as is also the case in other "boom" towns.

GEN 18-F We do not agree with your dismissal of the non-use values issue (p. 5-5) because we believe that the impact to the cultural environment of Zuni and the natural environment of the mine and surrounding area has been inadequately addressed. To simply state that non-use values is an issue of wider import and thus not appropriate for this EIS is inadequate.

CULT 18-H Please note that the Fletcher reference on p. C-2 and C-5 should read Zuni Cultural Resource Enterprise Report not Zuni Archaeology Program Report.

Sincerely,

Donald F. Eriacho

Donald F. Eriacho, Governor
Pueblo of Zuni

Attachment
cc. Roger Anyon, ZHHPO
Kirk Bemis, ZCP
Mike Shiel, Phoenix

Exhibit - 19

95-07-18-27

RECEIVED
MAIL ROOM
95 JUL -7 AM 10:58
SOCORRO RESOURCE AREA
SOCORRO, NEW MEXICO

LAS CRUCES DISTRICT
LAS CRUCES NM 88005

June 27, 1995

Charles Hodgin, Project Coordinator
Bureau of Land Management
Las Cruces District Office
1800 Marquess
Las Cruces, NM 88005

RE: Proposed Mining Plan and Permit Application, Fence Lake Mine

Dear Mr. Hodgin:

CULT 19-A Tribal concerns over disturbance to sacred sites, such as Cerro Prieto and Zuni Salt Lake, need to be understood in the context of the American Indian Religious Freedom Act. While the Fence Lake Mine EIS may claim such disturbances to be negligible, any impacts caused by human activities will threaten the integrity of American Indian religious and cultrual practices. Documentation of sites and their religious significance also infringes on the privacy of and ability of the tribes to maintain their age-old traditional religious traditions without interference.

CULT 19-B Although Indian tribes have been consulted, it is not clear whether the religious leaders of the impacted communities are capable of meeting a standard which requires them to prove that mining impacts will cause irreparable harm to their lives and culture.

CULT 19-C It shocks the conscience to consider the reburial schemes proposed in the Burial MDA, particularly reburial at the bottom of an open mining pit. This alternative is said to ensure that "human remains are treated in a sensitive manner". Perhaps this statement conveys the depth of cultural insensitivity to Indian cultural and religious freedom because such an alternative is outrageous. A truly "sensitive" approach would not demand tribes with age-old ties to the area to publicize their private religious practices with scientific accuracy or to compromise the integrity of religious traditions.

CULT 19-D Sensitivity demands that the unwritten laws of American Indians be respected as much as the written laws of the United States Courts and Congress. Privacy is the central to the free exercise of American Indian religious and cultural practices. Administrative monitoring of sacred sites and religious practices will defeat that value.

GEN 19-A The No Action alternative must be given more than a passing reference. The law requires it.

HYDRO 19-A No definitive study to date has been completed regarding the hydrologic effect of long-term mine dewatering on hydrologic resources in the area, including Zuni Salt Lake.

HYDRO 19-B Water quantity and quality impacts in turn will affect vegetative communities. It is questionable whether these impacts would be mitigated after reclamation since no examples of successful reclamation have been provided for comparison.

HYDRO 19-C The draft supplemental EIS for the proposed mining plan states that groundwater impacts are derived from Brown's one-dimensional analytical model. Based on predicted impacts derived from the model, Brown concluded that the proposed project would not have any significant impact on the region's hydrology. Yet, a one-dimensional model is hardly an adequate simulation of projected impacts to the area. Brown's study does not even mention the hydrological "unknowns" which any adequate study would cover.

HYDRO 19-D Water quality, it is concluded, would not change significantly, yet even the proposed reclamation itself would cause a change in water chemistry. Private wells will not be affected, the draft EIS says, because the coal and sandstone aquifer are separated by 14 feet of highly porous shale and siltstone. This highly unlikely conclusion further calls into question the utility of the EIS.

HYDRO 19-E Reduction in downstream water flows would be insignificant, the study concludes. Downstream water users in the Grants Mineral Belt of northwest New Mexico, however, experienced significant water flow impacts over 30 years of uranium mining. The long-term effects of those mine dewatering operations are not yet fully known.

HYDRO 19-F Dewatering effects on water quantity and quality in the Fence Lake area are not covered, presumably because of the need for further hydrological studies. Further, water rights may not be available for the massive amounts of water required without impairing the water rights of senior water users in the area.

HYDRO 19-G No mitigation plan is documented regarding the possibility of spills from the retention ponds, particularly during storm runoff periods. Any responsible impact study would cover this possibility.

HYDRO 19-H The amount of water required for strip mining is not feasible when water Indian tribes and surrounding communities are currently involved in water rights adjudications which have not yet determined water rights priorities to the water. The legal and practical

HYDRO 19-I uncertainties surrounding both the priority and availability of water for such a major drawdown of the aquifer's groundwater resources counsels against the issuance of a permit for coal strip mining at Fence Lake.

SOCIO ECON 19-A Short-term increases in employment may, nevertheless, generate long-term consequences. Mining activities in the Grants Uranium Belt precipitated a temporary "boom" in economic activity followed by a "bust" with long-term sociocultural impacts as well as adverse health effects. **You Poison Us**, Peter Eichstadt, Red Crane Press, 1994; **The State of Native America**: Radioactive Colonialism, Annette Jaimes, South End Press, Boston, Massachusetts, 1992; **Poison Fire, Sacred Earth**: Testimonies, Lectures and Conclusions, World Uranium Hearing, Salzburg, Austria, 1992.

CULT 19-E It is time that federal and state regulatory agencies give American Indian religious freedoms the same respect they have shown for the economic activities of mineral resource developers.

Sincerely,

Laura Watchempino

Laura Watchempino
P. O. Box 407
Acoma, NM 87034

Exhibit - 20

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services State Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 761-4525 Fax: (505) 761-4542

RECEIVED
JUL 0 3 1995

June 28, 1995

Cons. #2-22-94-I-397

95-07-07-14

Memorandum

To: Acting Regional Director, Office of Surface Mining, Denver, Colorado

From: State Supervisor, New Mexico Ecological Services State Office, Albuquerque, New Mexico

Subject: Review of Supplemental Environmental Impact Statement for Fence Lake Mine, Catron and Cibola Counties, New Mexico

A copy of the above referenced document was received by our office on May 5, 1955. The New Mexico Ecological Services State Office of the U S. Fish and Wildlife Service (Service) has reviewed the Supplemental Environmental Impact Statement (EIS) for impacts to species of concern to the Service and offers the following comments on the document. Additional comments regarding the railroad corridor in Arizona should be solicited from the Service's Arizona State Office at 2321 West Royal Palm Road, Suite 103, Phoenix, Arizona 85021-4957.

GENERAL COMMENTS

The Fence Lake Mine (Mine) will consist of a surface coal mine covering about 16,813 total acres, of which 7,885 acres would eventually be disturbed. Mining activities would remove about 1.8 million tons of coal annually for the first 28-year period, then about 3 million tons of coal for years 29 through 40. Eventually, 81.3 million tons of coal would be removed over a 50-year period. A 44-mile railroad corridor would be constructed west from the mine to supply coal to the existing Coronado Generating Station, located approximately 6 miles from St. Johns, Arizona. An additional 547 acres would be disturbed as a result of the railway.

SPECIFIC COMMENTS

VEG 20-A and WILD 20-A

Chapter 3(2)(e) Affected Environment, Wildlife Resources, Endangered and Threatened Species (Pages 3-13 through 3-20)

Table 3-2 and 4-3 list animal and plant species that are listed or candidates for listing under the Endangered Species Act. The table should be modified to reflect the changes in the table below, which includes changes in species status and new animals listed in the Animal Candidate Review, as contained in the Federal Register dated November 17, 1994. The EIS should be modified to discuss status of the species with regard to the proposed mine project.

COMMON NAME	SPECIES	STATUS
Allen's big-eared bat	*Idonycteris phyllotis*	C2
greater western mastiff bat	*Eumops perotis californicus*	C2
pale Townsend's big-eared bat	*Plecotus townsendii pallescens*	C2
big free-tailed bat	*Nyctinomops macrotis*	C2
fringed myotis	*Myotis thysanodes*	C2
long-eared myotis	*Myotis evotis*	C2
long-legged myotis	*Myotis volans*	C2
small-footed myotis	*Myotis ciliolabrum*	C2
Yuma myotis	*Myotis yumanensis*	C2
western burrowing owl	*Athene cunicularia hypugea*	C2
southwestern willow flycatcher	*Empidonax traillii traillii*	E
Baird's sparrow	*Ammodramus bairdii*	C2
interior least tern	*Sterna antillarum*	E
Arizona southwestern toad	*Bufo macroscaphus microscaphus*	C2
Chiricahua leopard frog	*Rana chiricahuensis*	C2
lowland leopard frog	*Rana yavapaiensis*	C2
Mexican garter snake	*Thamnophis eques*	C2
narrow-headed garter snake	*Thamnophis rufipunctatus*	C2
Texas horned lizard	*Phrynosoma cornutum*	C2
Acoma fleabane	*Erigeron acomanus*	C2
cinder cone phacelia	*Phacelia serrata*	C2
puzzle sunflower	*Helianthus paradoxus*	C1
Blumer's dock	*Rumex orthoneurus*	C1
Gila groundsel	*Senecio quaerens*	C2
Goodding's onion	*Allium gooddingii*	C1
Hess' fleabane	*Erigeron hessii*	C2

E = Endangered
C1 = Category 1 Candidate
C2 = Category 2 Candidate

Chapter 4(C)(4)(a) Environmental Consequences, Alternative 1, Earth Resources, Vegetation Resources (Pages 4-14 through 4-16)

VEG 20-B and WILD 20-B The EIS states that approximately one-half acre of wetland located along the railroad corridor would be eliminated by construction, and that the "...location and type of replacement wetland would be determined at some future date... ." Because the importance of wetland communities to wildlife in xerotypic climates is well documented, the Service is concerned that mitigation is not proposed in the EIS for these impacts. We recommend the EIS further discuss the type of wetland impacted by the railroad corridor and proposed mitigation to alleviate these impacts. Because the wetland impacts are associated with stream crossings, we recommend the feasibility of cottonwood pole plantings be investigated including distance to groundwater and salinity of soils. Because plantings would result in a shady area attractive to livestock species, and because livestock will graze young trees, we recommend protecting planted poles from livestock damage.

Chapter 4(C)(4)(b) Environmental Consequences, Alternative 1, Earth Resources, Wildlife Resources (Pages 4-17 through 4-20)

WILD 20-C The EIS states that a biological assessment of potential impacts of the mine on federally listed species will be prepared and submitted to the Service before completion of the final EIS. The Service previously concurred with a determination of "no effect" for the American peregrine falcon, black-footed ferret, and Mexican spotted owl in a letter dated July 26, 1990. However, because of the length of time since initial project review, and because of the new status for several species protected under the Endangered Species Act, we recommend further discussion regarding potential effects of the mining project occur.

SUMMARY

Concerns of the New Mexico State office regarding the proposed mine include those associated with new information regarding species listed or proposed for listing under the Endangered Species Act and impacts to wetlands. If you have any questions regarding the above comments, please contact Ms. Karen Cathey at (505) 761-4525.

Brian Hanson

for Jennifer Fowler-Propst

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry and Resources Conservation Division, Santa Fe, New Mexico
Regional Director, U.S. Fish and Wildlife Service, Ecological Services, Albuquerque, New Mexico
Area Manager, Socorro Resource Area, Bureau of Land Management, Las Cruces, New Mexico
State Supervisor, U.S. Fish and Wildlife Service, Ecological Services, Phoenix, Arizona

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Exhibit - 21

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

95-09-13-01 SEP 06 1995

Charles E. Sandberg
Acting Regional Director
Western Regional Coordinating Center
Office of Surface Mining
U.S. Department of the Interior
1999 Broadway, Suite 3320
Denver, CO 80202-5733

Dear Mr. Sandberg:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the Office of Surface Mining's (OSM) Draft Supplemental Environmental Impact Statement (DSEIS) for the proposed approval of a life-of-mine mining plan for the 16,813 acre Fence Lake mine in Catron and Cibola counties, New Mexico, and a permit application for a railroad corridor into Arizona. EPA offers the following comments for your consideration in development of the Final Supplemental Environmental Impact Statement (FSEIS).

DOCUMENT CONTENTS AND FORMAT

GEN 21-A In general, our review of the DSEIS found the document to be well written and concise in the information presented about this proposal, particularly in discussions of the affected environment and other planned activities. Most notable is the additional information and surveys conducted to assess potential effects on archaeological and traditional cultural properties within the project area.

HYDROLOGY

HYDRO 21-A We believe that additional information relevant to surface and subsurface hydrology is needed in the FSEIS. A map providing additional details such as the various proposed surface water diversions and impoundments would facilitate the identification of project features and affected resources. This map would aid in identifying the proposed diversions and impoundments described on pages 4-8 and 4-9. Therefore, we suggest that a detailed map similar to the one found in Volume II (Map A), containing specific components of the mine plan be provided in the FSEIS.

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SURFACE WATER DISCHARGES

The additional information provided by the Salt River Project Agricultural Improvement and Power District's (SRP) permit application package (PAP) for the Fence Lake mine would be beneficial to EPA in our consideration of a National Pollutant Discharge Elimination System (NPDES) permit. The discharges from this mining operation must be regulated and monitored in accordance to EPA's NPDES permit new source performance standard effluent limits. Therefore, in order to consider the SRP's NPDES permit application complete in the absence of an Environmental Information Document (EID), EPA requests a complete copy of the applicant's PAP for the Fence Lake mine. In addition, a copy of the 1994 Cumulative Hydrologic Impact Analysis, prepared by the New Mexico Mining and Minerals Division, would be beneficial in our evaluation of the NPDES permit application.

EPA DSEIS RATING

EPA rates this proposed action/DSEIS as "LO," i.e., EPA has a "Lack of Objection" to your proposal. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act, to inform the public of our views on proposed Federal actions. We appreciate the opportunity to review the DSEIS. We request that you send our office two copies of the FSEIS at the same time that it is sent to the Office of Federal Activities, EPA, 401 M Street S.W., Washington, DC 20460.

Sincerely yours,

A. Stanley Meiburg
Acting Regional Administrator

Exhibit - 22

Arthur Mogilefsky
P.O. Box 1397
Cedar Crest, NM 87008
(505) 281-7129
(505) 281-0408(fax)

95-07-27-01

July 4, 1995

Dr. Robert Block
Office of Surface Mining
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

RE: Fence Lake Mine Project

GEN
22-A

"NOT FOR PUBLICATION"

Very truly yours,

Arthur Mogilefsky

Arthur Mogilefsky

AM/sr
c:\wp51\misc\nre

Exhibit - 23

Center for Urban Affairs
and Policy Research
NORTHWESTERN UNIVERSITY

WESTERN SUPPORT CENTER
95 MAY 26 PM 12:13
OSMRE-WSC

Dr Robert H. Block
Western Regional Coordinating Center
OSM
1999 Broadway, Suite 3320
Denver, Co 80202-5733

May 20, 1995

Dear Dr Block:

GEN 23-A Please send me a copy of the draft supplement EIS on the Proposed Mining Plan and Permit Application, Fence Lake Mine. Please send the summary of scoping meetings and comments on the EIS. - and keep me on the mailing list for this project. Thanks a lot!

Sincerely,

H. Paul Friesema
Professor

H. PAUL FRIESEMA

60208-4100

2040 Sheridan Road/Evanston, Illinois [redacted] 492-3395

Exhibit - 24

95-06-06-04

Edward S. Syrjala
P.O. Box 149
Centerville, Ma.
02632
June 2, 1995

Dr. Robert H. Block
Western Regional Coordinating Center
Office of Surface Mining
1999 Broadway
Suite 3320
Denver, Colorado 80202-5733

Dear Sir:

GEN 24-A I am requesting a review copy of the Draft Supplemental Environmental Impact Statement for "the Proposed Mining Plan and Permit for the Fence Lake Mine." Additionally I would ask that my name be added to the Service and Distribution List through the Record of Decision and such subsequent implementation plans which may come under review for this locale.

I appreciate any consideration that you may give my request.

Sincerely,

Edward S. Syrjala

Part 2

Agencies' Responses to Oral Testimony and Written Comments

Responses to Comments on Air Quality (Air)

In summary, comments were received regarding the air quality impact assessment model, the siting of monitoring equipment, potential impacts from gaseous emissions and the release of mercury, and the air pollution control plan for fugitive dust emissions.

Air 7-A - There are no mercury emission standards that apply to coal mining. Please see response to comment Geol 7-A.

Air 13-A - Your comment is acknowledged. However, the Agencies believe that the impacts of the proposed Fence Lake project on the air quality in the vicinity of the mine have been adequately addressed. Please see chapter 4, section C-1.

Air 14-A - The air quality monitors would be located in areas of expected maximum concentrations. The prevailing wind direction is southeast through west, thus the monitor to the northeast of the permit area would record concentrations from both the facilities and the pit. The placement of additional monitors would be unnecessary. However, the location of monitors would be reconsidered if higher than expected concentrations were found to exist.

Air 14-B - Your comment is noted. The supplemental EIS has been modified to indicate that gaseous emissions would not increase significantly. See chapter 4, section C-1. It is difficult to estimate the amount of gaseous emissions because of lack of specificity about vehicular traffic, however, the use of electric draglines and drills would help to keep emissions at a minimum. Those vehicles that are used off the permit area would need to meet the State emission standards. In addition, haul trucks and other construction vehicles would be required to comply with the EPA emission standards for large non-road compression ignition engines found in 40 CFR part 89 (promulgated in 1994).

Air 14-C - Your comment is noted. The supplemental EIS has been modified to add PM_{10} concentrations collected at other surface coal mining operations with twice the coal production proposed for Fence Lake. See chapter 4, section C-1.

Air 17-A - Your comment is noted. The supplemental EIS has been modified to indicate that the models were used to predict worst case impacts. Also data measured at other surface coal mining operations has been added to help predict worst case impacts. See chapter 4, section C-1.

Air 17-B - The "permit" referred to on page 4-29 volume I is the "permit" that would be issued by State of New Mexico MMD to Salt River Project to conduct surface coal mining and reclamation operations at the proposed Fence Lake mine. See chapter 1, section C.

Air 17-C - The BLM draft EIS states on page 3-3, volume II that "only total suspended particulate mater (TSP) is monitored in the vicinity." This statement is clarified in subsequent paragraphs on page 3-3 and in table 3-1. The TSP data was collected by Salt

River Project on the eastern edge of the proposed permit area and by the State of Arizona at its Mesa Parada site.

Air 17-D - The permit application package submitted by Salt River Project to New Mexico MMD has an air pollution control plan for fugitive dust emission and has been summarized in chapter 4, section C-1.

Air 17-E - The agencies are aware that the Fence Lake mine would need an air quality permit under AQCR 702. This permit is listed on page 1-8 of the BLM draft EIS (Supplemental EIS, Volume II).

Air 18-A - No specific air quality modeling was done for the proposed Fence Lake mine because the agencies concluded that information from modeling done at other mines and existing air quality data from those mines were sufficient to determine what the worst case impact on air quality would be. The text has been augmented with data from two existing surface coal mines which have production greater than the proposed Fence Lake mine's. The data shows that the model tends to over-predict the expected concentration. The agencies expect that neither the mine nor the railroad corridor would have any impact on the air quality at Zuni Salt Lake and have used the term "negligible" to indicate that degree of impact.

Responses to Comments on Geology/Topography (Geol)

In summary, comments were received regarding potential release of radioactive materials and mercury into the atmosphere and changes in topography that could result from mining.

Geol 2-A - Under certain conditions, coal has served as a host for uranium or other radioactive materials. However, there is no evidence that this has occurred at the proposed Fence Lake Mine site or elsewhere in the Moreno Hill Formation. The weighted mean concentration of uranium in the overburden at the mine site is 0.00062 percent. By contrast, the ore that was mined near Grants, NM averaged 0.2 percent uranium, more than 320 times as much. Coal-mining operations at the proposed Fence Lake Mine will not release any radioactivity that could damage the water, soil, or air of the area around the mine or that could present a hazard to the mine employees.

Geol 2-B - As discussed in chapter 4, section C-2-a and -b, only a few low buttes would be destroyed by the proposed mining. Most of the mining would occur between the lower and uppermost bluffs. The area between the bluffs would be reclaimed to a moderate slope, but this would not be "rounded mound". Some proposed areas of mining already could be described as "rounded mounds", and these would look about the same following reclamation.

Geol 7-A - The agencies are not aware of any instance in which the sale and mining of coal has released harmful amounts of mercury into the atmosphere. There is a slight possibility that burning the coal could release mercury into the atmosphere, but this is a question of the operations at the existing power-generating station, not the proposed Fence Lake Mine.

Geol 16-A - Please see the response to Geol 2-A.

Responses to Comments on Soils (Soils)

In summary, a comment was received regarding increases in total suspended sediment owing to increased erosional potential of spoil areas.

Soils 17-A - The commenter referred to a statement on page 4-9 of Volume II of the draft supplemental EIS concerning total suspended solids. There is no such statement on page 4-9. However, the preceding page, 4-8, has Table 4-1 which contains the statement, under Surface Water Quality, "Increased TSS because of erosion potential of spoil."

The State and Federal Regulations require that the applicant submit a reclamation plan that assures vegetation success and controlling the contribution of suspended solids to streamflow or runoff outside the permit area in excess of the requirements set by the State of New Mexico Surface Mining Act and the implementing regulations and/or the Surface Mining Control and Reclamation Act of 1977 and the implementing regulations. A bond must also be posted by the applicant to assure that in case of failure on the part of the company there are monies available to reclaim the site in accordance with the approved reclamation plan. The period of extended responsibility for successful revegetation shall begin after the last year of augmented seeding, fertilizing, irrigation, or other work, excluding husbandry practices that are approved by the regulatory authority in with the appropriate regulation and continue for a period of not less than 10 full years.

Responses to Comments on Hydrology (Hydro)

In summary, comments were received regarding potential impacts to surface and ground water quantity and quality, potential impacts to Zuni Salt Lake, effects on quantity of precipitation, importance and location of monitoring wells, community water supply issues, surface water diversions, U.S. Army Corps of Engineers permits, analysis of sediment loading, potential impacts to ranch wells and the alluvial system, best management practices, drawdowns and recharges to sub-surface formations, maximum pumping rates, dewatering proposals, water suitability standards, sedimentation ponds, and impacts to water-users.

Hydro 1-A - The impacts of surface mining on surface-water quantity within and adjacent to the disturbed area of the Fence Lake Mine project would be limited to the alteration of drainage patterns and infiltration rates of the reclaimed areas. These impacts should be minimal since all of the surrounding arroyos are ephemeral and the natural flow of the area has been somewhat altered by spreader dikes and check dams to harvest the limited amount of precipitation. These small structures reduce flow to the arroyos and thereby provide partial or complete retention of runoff.

Surface-water quantity impacts to Largo Creek above its junction with Nations Draw would be negligible. Below the junction with Nations Draw, the impact would be minor owing to the fact that the permit area would encompass less than 3 percent of the Largo Creek watershed.

Effects to surface water quality would be limited to slight improvements to water quality for short distances below impoundment discharge points due to decreases in settleable solids.

Three aquifers are being considered for mine operation water supplies. These sources are the alluvium, the Atarque Formation, and the Dakota Formation. Results of aquifer investigations of these three sources indicates that each aquifer contains sufficient water to supply the entire demands of the mining operation.

Water quality of the alluvium is less than desirable for domestic use at the present time due to high TDS values and high alkalinity. Post mining alluvial water quality would be expected to have higher electrical conductivity and somewhat lower pH values. Water quality of the Atarque Formation and the Dakota Formation would not be expected to change because ground water of these aquifers would not come into contact with ground waters of the spoil aquifer.

Any changes in the quality or quantity of the waters of the alluvium at the mining operations that could be transported downstream in Largo Creek should not be transferred to Zuni Salt Lake due to the lack of a hydrogeologic connection between the alluvium of Largo Creek and Zuni Salt Lake.

Waters of the Atarque Formation and the Dakota Formation would not come into contact with post mining spoil waters and therefore, water qualities would not be impacted by mining. The lack of water quality impacts to these aquifers precludes any changes to the qualities of the waters of these formations that may be contributed to Zuni Salt Lake.

Hydro 1-B - See the response to comment Hydro 1-A for expected impacts to surface and ground water quality and quantity as a result of mining.

Hydro 2-A - See the response to comment Hydro 1-A as it relates to the effects to surface and ground water quality and quantity and the effects to Zuni Salt Lake. SRP holds all of the water rights to all ranch wells within the Hubbel and Strang ranches. SRP has also developed and declared 3 wells for utilization as water supply for the mining operations. The water rights are as follows:

Water Right	Amount	Formation
02-155	50 gpm	Alluvium
02-153	300 gpm	Dakota
02-154	200 gpm	Alluvium

Additional wells were drilled into the Dakota Sandstone and the Atarque Sandstone and formal declarations for 4 additional wells were filed with the State Engineers office in April, 1994.

Hydro 2-B - Mining disturbance is not anticipated to have any effect on the quantity of precipitation, which is impacted primarily by global weather patterns and long term climatic factors.

Hydro 2-C - See response to comment Hydro 1-A.

Hydro 2-D - See response to comment Hydro 1-A regarding effects to Zuni Salt Lake. Two groundwater monitoring wells have been developed in the Dakota Formation between the mining disturbance and the Zuni Salt Lake. These wells would only be used to monitor static water levels and water quality of the Dakota Formation. Monitoring would be done on a quarterly basis and results would be sent to the Mining and Minerals Division. Presently there are five monitoring locations within Zuni Salt Lake. The purpose of these monitoring locations is to gather information on water qualities and depth of water.

Hydro 2-E - Mine reclamation would include revegetation of disturbed areas with vegetation that is native to the area. Successful plant species would need to be tolerant of the low precipitation amounts characteristic of the area. Therefore, no impacts to water availability or water use would occur due to changes in plant species.

The mine area would encompass less than 3 percent of the Largo Creek watershed and less than 5 percent of the Nations draw watershed. The U.S. Geological Survey Reports estimate between .1 and .5 inches of annual runoff from the area upstream of monitoring station SW-ND-5, which is located on Nations Draw approximately 1.5 miles downstream of the proposed permit boundary. See Figure 2. **(Air & water monitors will be added to Figure 2).** For the 209.4 square mile area above SW-ND-5, this represents a potential annual runoff volume of 5584 acre-feet. If the entire 5 percent of the runoff that fell on the mine were retained on the mine it would represent 279 acre-feet of runoff that wasn't available for recharge from surface flows downstream of the mine on Largo Creek. The entire Largo Creek watershed, which includes the Nations Draw watershed, is estimated at 768 square miles. Using the .5 inch runoff figure, this amounts to a potential annual runoff volume of 20,476 acre-feet available for downstream recharge. The 279 acre-feet potentially retained on the mine is insignificant in comparison. For these reasons, changes to stream flow and quality are not anticipated. For responses to other parts of this comment, please see the response to comment Hydro 1-A.

Hydro 2-F - Concern about potential impacts to water resources was one of the principal reasons that OSM considered when determining that a supplemental EIS should be prepared. See section chapter 1, section A. Further studies of the local hydrologic system, including surface water, ground water and potential effects to Zuni Salt Lake, were undertaken. The results of the studies conducted by government representatives as well as by private consultants employed by certain tribes, concluded that mining should have little local effects and, with proper monitoring, negligible impact on the Zuni Salt Lake.

Hydro 2-G - Mining and reclamation of the proposed permit area would not be expected to have any effect on the amount of local precipitation. Similarly, mining and reclamation would not be expected to impact any local livestock wells located outside of the proposed permit area. Please see response to comment Hydro 2-F for information concerning further study of the Zuni Salt Lake.

Hydro 2-H - Community water supply issues that may concern the City of Albuquerque, the State of California, and other areas of the country are beyond the scope of this supplemental EIS.

Hydro 2-I - For a response to the water quality portion of this question please see response to comment Hydro 1-A.

A Cumulative Hydrological Impact Assessment (CHIA) was conducted by the Mining and Minerals Division (MMD) as well as an independent study by a private firm contracted by the Zuni tribe. Many answers to the geological and hydrological questions can be found in the CHIA and the mining Permit Application Package. All hydrological studies are necessarily closely correlated with the known local geological features. Assumptions are a necessary portion of any study when attempting to associate the known with the unknown .

For a response to potential disturbances at Zuni Salt Lake please see response to comment Hydro 1-A.

Diversion of surface water would only be done to allow arroyo waters to avoid coming into contact with mining disturbed areas. The entire permit area would amount to only 3 percent of the Largo Canyon area, and disturbed areas would be less than 1.5 percent. Precipitation that falls within the mining area would first be passed through necessary sedimentation structures before it is released on to the alluvial system. Diversion of surface waters would not be expected to have an effect on the hydrological system of Zuni Salt Lake.

Mining and blasting would occur in the upper Moreno Hill Formation. This portion of the Moreno Hill Formation has been eroded away and is not present at the Zuni Salt Lake.

Following mining, the reclaimed areas would be returned to an approximate original contour that attempts to return the land to its original form and to a shape that will aid in the control of erosion.

__Hydro 6-A__ - At present there are three monitoring wells completed into the Dakota Formation. These wells are the FL-36(OB-1), FL-36(OB-2), and the Jerry Well. Historical water level pressures are currently available from the Fl-36 production well. Pressures and water levels are currently being collected at the other monitoring wells. Prior to issuing the mining permit, the historical pressure and static water level data would become part of the mining permit. Well completion data is presently contained within the permit for well FL-36(OB-1) and the Jerry Well.

Data is currently collected by SRP. If a mine permit is issued data would be collected by SRP and sent to the Mining and Mineral Division on a quarterly basis. Field checks by the Mining and Minerals Division would be conducted on an as needed basis.

__Hydro 8-A__ - For an answer to this comment regarding surface and ground water impacts please see response to comment Hydro 1-A.

__Hydro 9-A__ - For an answer to this comment regarding surface and ground water impacts please see response to comment Hydro 1-A.

__Hydro 10-A__ - For a answer to this comment regarding potential impacts to the water of the Zuni Salt Lake please see response to comment Hydro 1-A.

__Hydro 10-B__ - For a response to the first part of this question concerning the impacts to the quality and quantity of water resources at Zuni Salt Lake please see response to Hydro 1-A.

Currently there are five monitoring points within Zuni Salt Lake. The monitoring stations are sampled quarterly for water quality and depth. A series of three Dakota Formation monitoring wells exist between the Dakota production well and the Zuni Salt Lake.

Hydro 11-A - Please see to response to comment Hydro 1-A.

Hydro 11-B - Please see response to comments Hydro 1-A and 10-B.

Hydro 12-A - Most ranch wells in the vicinity of the proposed mining area are completed in the alluvial system. Mining would be expected to have little if any impact on the alluvial system outside of the proposed permit area. Impacts to existing alluvial wells within the proposed permit area are limited to temporary drawdowns in water levels and minor changes to water quality that should not effect its palatability to cattle. Four wells would probably be removed by mining activity. Within its Permit Application Package, SRP has committed to restore a comparable water supply to the owner of any ranch well that would be significantly impacted by the mining operations.

Hydro 13-A - The New Mexico MMD has determined that SRP's Permit Application Package (PAP) adequately addresses all hydrological issues as required by the State of New Mexico Surface Coal Mining Regulations, Rule 80-1. OSM is conducting a technical review of the Arizona portion of the PAP to ensure that it adequately addresses all applicable Federal laws and regulations concerning hydrological issues. See also response to comment Air 13-A.

Hydro 17-A - No response required.

Hydro 17-B - Obtaining the 401 water quality certification was considered as a necessary step in obtaining the 404 permit from the U.S. Army Corps of Engineers.

Hydro 17-C - State and Federal coal mining regulations require that support facilities such as the proposed railroad shall be located, maintained and used in a manner that prevents or controls erosion, siltation, and water pollution. Also, the respective regulations require that, to the extent possible and using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area shall be minimized, and that any such contributions shall not be in excess of limitations of State and Federal law. For these reasons the analysis of sediment loading was not discussed.

Hydro 17-D - State and Federal coal mining regulations require regular inspections of active coal mining operations. Since the State of New Mexico would be the regulatory authority at the proposed mine site, MMD would be required by its regulations to inspect the mining site at least once a month. These monthly inspections would provide the mechanism by which the proper function and effectiveness of Best Management Practices (BMPs) could be determined.

Hydro 18-A - The intensity of impacts described in the supplemental EIS range from negligible to major. See Footnote 1, Table 2-1. The categories of intensity of impact that are found in this analysis follow the standard practice that is used in other NEPA documents prepared by OSM, which is the lead agency in the preparation of the supplemental EIS. This practice does not include a "no impact" category and uses "negligible" as the lowest intensity of impacts.

Hydro 18-B - The mine area would encompass less than 3 percent of the Largo Creek watershed and less than 5 percent of the Nations draw watershed. The U.S. Geological Survey reports estimate between .1 and .5 inches of annual runoff from the area upstream of monitoring station SW-ND-5 which is located on Nations Draw approximately 1.5 miles downstream of the proposed permit boundary. For the 209.4 square mile area above SW-ND-5, this represents a potential annual runoff volume of 5584 acre-feet.

If the entire 5 percent of the runoff that fell on the mine were retained on the mine it would represent 279 acre-feet of runoff that wasn't available for recharge from surface flows downstream of the mine on Largo Creek. The entire Largo Creek watershed, which includes the Nations Draw watershed, is estimated at 768 square miles. Using the .5 inch runoff figure, this amounts to a potential annual runoff volume of 20,476 acre-feet available for downstream recharge . The 279 acre-feet potentially retained on the mine is insignificant in comparison and the reduced downstream recharge to the Mancos Shale and Dakota formation should be undetectable and produce a negligible impact.

Hydro 18-C - Maximum pumping rate figures for production for the Atarque Sandstone and Dakota Sandstone are presented in the PAP, chapter 14, appendix 14-1. For the supplemental EIS, figures based on maximum coal production estimates were used to represent more realistic water usage over time.

Hydro 18-D - The use of the word “probably” in the concerned paragraph is justified in the following sentence where it is inferred that identification was based on fossil similarities contained in the sandstone on the interior walls of the lake compared to those of known Atarque Sandstone outcrops. A degree more of certainty is implied in the last sentence of the paragraph where the phrase “Atarque Sandstone at the lake” is used.

The supplemental EIS did not state or intend to imply that a “complete hydraulic break” existed between the proposed mine area and the Zuni Salt Lake. The fact is that the Atarque Formation is breached at a point between the proposed mine area and the Zuni Salt Lake due to the erosive actions of water in Largo Canyon.

Information concerning water drawdowns of the Atarque Sandstone as a result of pumping at the mine are found in the PAP, chapter 14, appendix 14-1. No drawdown is expected to occur at a distance greater than 5000 feet from the producing well.

Hydro 18-E - It is the responsibility of the regulatory authorities, OSM and MMD, to review the Permit Application Package for accuracy and compliance with the mining regulations. Methods used by SRP to determine well drawdowns are commonly accepted methods used throughout the hydrologic industry. While differences exist between the results, depending on the method used, the results arrived at by SRP are deemed by the regulatory authorities to be reasonable. As a result of the variation in potential drawdowns, a system of monitoring wells has been developed to ascertain that predictions made by SRP are accurate and do not effect water sources outside of the proposed permit boundary.

Hydro 18-F - This statement reiterates the point that there is little regional data and that a regional quantitative model would likely be inaccurate. The statement in no way implies that the information contained within the Permit Application Package or CHIA is inaccurate or inadequate to support the findings of the documents.

Hydro 18-G - At the present time there is in place and operational a ground water monitoring system that is capable of monitoring changes in the Dakota Formation, the Atarque Formation and the alluvium. There is also a monitoring system within the Zuni Salt Lake that is in place and operational, consisting of 5 stations that are used to determine water qualities and depth changes.

Prior to any mining, a determination of historical variation of the static water level in the Dakota formation would be made based on data gathered from monitor wells FL-36 OB-1 and FL-36 OB-2. From that information a change threshold would be developed that, when reached, would require cessation of use of the aquifer until such time as the static water level returns to within the threshold limits. Threshold limits were not discussed in the EIS because of the necessity of gathering historical data prior to determining a reasonable limit based upon data.

Hydro 18-H - See response to comment Hydro 18-A.

Hydro 18-I - See response to comment 18-A.

Hydro 18-J - See response to comment Hydro 18-A.

Hydro 18-K - Before any mining permits could be issued, the regulatory agencies are required by law to ensure that SRP's proposed mining plan is in compliance with State and Federal regulations pertaining to protection of water quality. This would include the requirement that sufficient measures have been taken to protect the quality and quantity of the waters of Zuni Salt Lake. For a discussion of the monitoring system, see the response to comment Hydro 18-G.

Hydro 19-A - Dewatering is proposed for a 34 acre area near Garcia Lake in mining years 4 through 10, and for a 76 acre area between Frenches Draw and Nations Draw in mining years 11 through 20. For purposes of analysis in the supplemental EIS these time periods fall within the definition of short term since they would occur during the life of the mine, prior to bond release. Dewatering is proposed for the alluvial system only and the effects of dewatering are expected to become negligible approximately 5745 feet from the center of the dewatering areas, which is still over 10 miles from Zuni Salt Lake. Additional information on the dewatering of areas within the alluvial system is contained in the PAP, chapter 14, section 14.1.1.

Hydro 19-B - The proposed mining is not anticipated to have an effect on the quantity or quality of precipitation that is used by the vegetative communities. Mined areas should have a slightly greater infiltration rate which would allow more water to be available for plant uptake. Predictions of post-mining water quality show no indication of parameters that would prohibit plant growth. The regulatory authorities have reviewed the methods of reclamation proposed in the PAP and determined that they are similar to generally accepted practices that have resulted in successful reclamation at other mines throughout the West. Mining regulations do not require applicants to provide a comparison of specific successful reclamation examples with the proposed methods of reclamation.

Hydro 19-C - No reference to Brown's one-dimensional analytical model is found in the supplemental EIS or the PAP.

Hydro 19-D - At the present time, water quality in the alluvial aquifer is only suitable for livestock. Alluvial waters are only marginally suitable for human consumption since total dissolved solids and manganese concentrations are occasionally higher than EPA criteria.

Waters of the undisturbed coal aquifer are presently unsuitable for livestock and human consumption according to EPA standards. The water exceeds human and livestock criteria for fluoride and human criteria for total dissolved solids. Water from the coal aquifer is unsuitable for irrigation because of high total dissolved solids and sodium concentrations.

Water from the Tejana Sandstone is suitable for livestock consumption but is unsuitable for human consumption due to high fluoride and total dissolved solids concentrations. The water from this aquifer is not suitable for irrigation because of high total dissolved solids and sodium absorption ratios.

The expected post-mining impacts to the water quality of these three aquifers are found in the PAP, Chapter 14, page 14-12. Predicted changes to the alluvial aquifer include a decrease in pH and an increase in specific conductivity and trace elements. The coal aquifer should experience an increase in specific conductivity and trace elements, while no changes are expected in the Tejana sandstone.

The predicted changes in water quality do not change the suitability of the waters for human or livestock consumption.

There is no reference in the supplemental EIS to "14 feet of highly porous shale and siltstone" that separate the coal from the sandstone aquifer. Page 12-29 of the PAP contains the sentence, "The overburden and coal removal will not have a measurable effect on these wells due to the 14 to 50 feet of shale and siltstone separating the coal to be mined and the Tejana Sandstone aquifer."

Hydro 19-E - Your comment is acknowledged. However, the agencies support the conclusions presented in this supplemental EIS and consider circumstances in the Grants Mineral Belt associated with uranium mining to be totally unrelated to this proposed project.

Hydro 19-F - For a response to the dewatering portion of this question please see response to comment Hydro 19-A.

Water Rights are addressed in chapter 4, section C-3-a of this supplemental EIS and in the PAP, chapter 2, page 2-34. The New Mexico State Engineers Office considered potential impairment to senior water users when water rights permits for this project were issued and determined at that time that there were no senior water users who would be impacted.

Hydro 19-G - Preliminary impoundments (ponds) are discussed in chapter 4, section C-3-a this supplemental EIS. All pond designs for runoff and sediment control are contained in chapter 26 of PAP. All sedimentation ponds are required by Federal and State mining regulation to have a storage capacity equivalent to the runoff generated from the contributing drainage area by the 10-year, 24-hour storm. Sediment accumulations would be periodically removed from the ponds to maintain sufficient storage capacity for future runoff events.

Hydro 19-H and 19-I - The determination and issuance of water rights are the responsibility of the New Mexico State Engineers Office, which determined that SRP's proposal fulfilled the requirements of applicable regulations and issued water rights permits. Water rights adjudication issues are beyond the scope of this project-specific supplemental EIS. Please also see response to comment Hydro 19-F.

Hydro 21-A - Your comment is noted. Figure 4 has been added to the supplemental EIS.

Responses to Comments on Vegetation (Veg)

In summary, comments were received regarding potential impacts to grassland communities, the role of regulatory agencies in mitigation and remediation of disturbances to flora and fauna, the seasonal timing of species surveys, potential for loss of and impact to a wetland, revegetation requirements, and listing of animal and plant species pursuant to the Endangered Species Act.

Veg 1-A - Yes, the analysis indicates that there would be an impact to the grassland vegetative communities. However, as discussed in chapter 4, section 4-a-(1) the disturbed area would be reseeded with a seed mix composed of native grasses, forbes, and shrubs that would result in reestablishment of a grassland community. Therefore, the impact to the grassland community would only be short term.

After considering the comment regarding the loss of pinyon-juniper-blue grama, the EIS team discovered that the summary, section D incorrectly referred to a loss of pinyon-juniper-blue grama habitat. This statement has been revised since there is no pinyon on the area proposed for disturbance and the correct plant community for the proposed mine area is juniper-blue grama. The commentor is correct that the loss would be long-term, but this loss would be of juniper trees and the associated wildlife habitat they provide. However, this plant community only produces 65 to 91 pounds of herbaceous vegetation per acre per year. With a postmining land use of grazing land the proposed revegetation seed mix will result in much higher herbaceous production that would better support the proposed land use.

Veg 2-A - The applicant for the proposed mining permit, SRP, would be directly responsible for mitigation and remediation of disturbances caused by mining. The potential impacts to the flora and fauna, along with mitigation and reclamation plans are discussed in the permit application and in chapter 4 of the BLM's EIS and in chapter 4 of the supplemental EIS. The New Mexico Mining and Minerals Department is responsible for reviewing and approving the permit application for mining and regulating the proposed mining and reclamation operation and railroad corridor in the State of New Mexico. The Office of Surface Mining Reclamation and Enforcement is responsible for reviewing and approving the permit application and regulating the proposed railroad corridor in Arizona.

Veg 13-A - See response to comment Wild 13-B.

Veg 17-A - See response to comments Wild 17-A and Veg 17-A.

Veg 17-B - As discussed in chapter 4, section C-4-a-(1), the entire area disturbed by mining and related activities would be revegetated following regrading and replacement of soil. The revegetation seed mix (Table 4-2) lists the native species that would be used for revegetation. Before the reclamation bond can be released the applicant must demonstrate that the revegetated areas have 90 percent of the cover and production of reference (undisturbed) areas for the last two years of the 10 year liability period. This should minimize any increase in suspended solids.

Veg 20-A - See response to comment Wild 20-A

Veg 20-B - See response to comment Wild 20-B. In regard to the USFWS recommendation to look into the feasibility of cottonwood pole plantings at stream crossings that impact wetlands, there would be only one wetland affected by the railroad corridor. The potential does exist to include planting of cottonwoods at this location. The recommendation will be forwarded to the applicant for consideration. All other railroad crossings would be across a dry ephemeral wash that is not capable of supporting cottonwoods.

Responses to Comments on Wildlife (Wild)

In summary, comments were received regarding wildlife species diversity and population, potential impacts to nesting raptors, role of regulatory agencies in mitigation of impacts to wildlife, seasonal timing of endangered species surveys, surveys for the Mexican Spotted Owl, wetland habitat disturbance and potential mitigation, and updating the animal and plant species listing pursuant to the Endangered Species Act,

Wild 1-A - See response to comment Veg 1-A.

Wild 1-B - SRP would be required to conduct annual raptor nesting surveys along the railroad corridor and mine permit area. If nesting raptors are located in areas scheduled for construction or mining, then a mitigation plan to avoid disturbance would be developed in consultation with the U.S. Fish and Wildlife Service (USFWS).

Wild 2-A - Please see response to comments Wild 1-B and 13-A.

Wild 2-B - See response to comment Veg 2-A.

Wild 13-A - In order to comply with the Migratory Bird Treaty Act and the Bald Eagle Protection Act, SRP would annually conduct spring breeding bird surveys that would concentrate on sensitive species, including golden eagles. If an active golden eagle nest is located during these surveys, SRP would be required to notify New Mexico MMD and OSM, which in turn would consult with the USFWS and the appropriate State wildlife agency to develop a mitigation plan on a case-by-case basis. A typical mitigation plan for avoiding disturbance to nesting golden eagles includes the limitation of surface disturbance and development of occupied structures within 1/4 mile of the occupied nest, and the limitation of human disturbance within 1/2 mile between February 1 through July 15.

Wild 13-B - In compliance with Section 7 of the Endangered Species Act, the USFWS has determined the list of threatened and endangered species that could potentially occur in the proposed Fence Lake project area are the: black-footed ferret (Mustela nigripes), bald eagle (Haliaeetus leucocephalus), Zuni fleabane (Erigeron rhizomatus), southwestern willow flycatcher (Empidonax trailii extimus), and the interior least tern (Sterna antillarum). Site specific surveys for each of the individual species noted here would be warranted if potential habitat existed on or adjacent to the proposed mine area.

Surveys of prairie-dog towns have been conducted in the proposed mine area and railroad corridor. No towns would be disturbed that meet the USFWS criteria for potential black-footed ferret habitat. Therefore, specific surveys for ferrets have not been required.

The bald eagle occurs in New Mexico and Arizona primarily as a winter resident and migrant. Known nesting locations include the Salt, Verde, Gila, San Carlos and Rio Grande River systems. Nesting habitat includes areas close to open water that provide an adequate food source with large nest trees. Prey during the breeding season primarily consist of fish. The major components of habitat on wintering grounds include an adequate food source and suitable trees for diurnal perching and nocturnal roosting. Food availability is the single most important factor affecting winter eagle distribution and abundance. These habitat requirements do not exist at the Fence Lake Project area. However, the annual raptor nesting surveys should detect this species if they begin to frequent or nest in the area.

The southwestern willow flycatcher is restricted to habitat with dense riparian associations of willow, cottonwood, buttonbush, and other deciduous shrubs and trees. This habitat type does not occur on the mine area or in the vicinity of the railroad corridor, therefore, specific surveys were not required.

The interior least tern's breeding habitat centers around three ecological factors including: the presence of bare or nearly bare alluvial islands or sandbars in association with major rivers or tributaries, the existence of favorable water levels during the nesting season and the availability of food. None of these habitat requirements exist at or near the Fence Lake Project, therefore, specific surveys for this species were not required.

Known populations of the Zuni fleabane grow in a zone of Chinle shale and Baca formation in the pinyon-juniper vegetation type at 7,180-7,870 feet in elevation. Most populations are known from the Cibola National Forest in areas south of Fort Wingate in McKinley County, and northwest of Datil in Catron County. The soil and associated vegetation type required for the Zuni fleabane do not exist on the project area.

One Mexican spotted owl (Federally listed as threatened) was heard calling during the baseline wildlife surveys in the Apodaca windmill area. The habitat requirements and survey requirements for the spotted owl are described in comment 13-C.

On September 24, 1995 OSM prepared a biological assessment addressing the potential impacts that the proposed project would have to the above listed species. At the request of USFWS additional information was submitted on the potential impacts to Parish's alkali grass. The only potential habitat for this grass species would be at the wetland site located along the railroad corridor in Arizona near the Coronado Generating Station. This wetland was surveyed in August of 1995 to determine species composition and extent of wetland that could potentially be impacted by the railroad construction. Parish's alkali grass was not noted in this survey; however, the survey was not conducted during this species' flowering period. SRP has committed to conduct an additional survey of the wetland between April and July of 1996 in order to determine the presence or absence of this species. If OSM decides to issue a permit for the railroad transportation corridor in Arizona, the permit would contain a stipulation that this survey must be completed and the results submitted to OSM for review prior to any disturbance of the wetland area. OSM will continue informal consultation under Section 7 of the Endangered Species Act until the survey has been completed.

Wild 13-C - The Mexican spotted owl (Strix occidentalis lucida) is currently listed as a threatened species. This subspecies habitat requirements range from mountains with dense, multi-storied forests with moderately closed canopies, to canyons systems with little or no tree cover. Associated forest types include deciduous riparian woodlands, pinyon-juniper, pine-oak, mixed conifer, and spruce-fir. Habitat characteristics typically include high closed canopy, high stand density, a multi-layered canopy, uneven aged stands, presence of snags, and downed woody material. The occurrence of spotted owls in canyon habitat with a minimal forest component would imply that the topographic features of the canyon system may parallel the multi-storied structural characteristics of the forested habitats (58 FR 14248).

Vegetation types that would be disturbed by the mining operation are described in Table 4-1. These types include juniper-blue grama, saltbush-alkali sacaton, mixed grass, and greasewood-alkali sacaton. None of these types provide suitable habitat for the Mexican spotted owl. The canyon type habitat also does not occur in the area. Nesting surveys would not be required unless potential habitat or areas adjacent to potential habitat were scheduled for disturbance.

Wild 17 A and Vegetation 17-A - SRP has committed to replacement of the disturbed wetland at a 1:1 ratio. A complete mitigation plan for replacement is currently pending. The wetland is located in the Arizona portion of the railroad corridor, therefore, water quality certification from the New Mexico Environmental Department is not necessary.

Wild 20-A - Information on candidate species identified by the U.S. Fish & Wildlife Service has been added to chapters 3 and 4.

Wild 20-B - The agencies have required additional information on vegetative species, type and size of the wetland from SRP. Furthermore, the agencies have required SRP to develop a detailed mitigation plan for the portion of the wetland that will be disturbed by the construction of the railroad corridor.

Wild 20-C - OSM reinitiated informal Section 7 consultation the with the USFWS to discuss potential effects of the mining operation on species protected by the Endangered Species Act. On October 24, 1995 the USFWS concurred with OSM's biological assessment.

Responses to Comments on Land Use and Recreation (Land)

In summary, comments were received regarding the proposed postmining land use, multiple-use of the land, and potential impacts to current levels of livestock grazing.

Land 8-A - Your comment is acknowledged. Please see the analysis of potential impacts to land use in chapter 4, section C-5.

Land 13-A - The agencies are not suggesting that livestock grazing would be the only postmining land use that would occur in the former mine permit area. SRP is the entity making the commitment to restore the proposed mine permit area to a condition suitable for livestock grazing after the life of the mine. If the regulatory authorities approve grazing as the postmining land use, SRP would be required to post appropriate reclamation bonding and comply with this commitment. However, since the proposed mine permit area would consist of a combination of Federal, State and private land surface, it is conceivable that actual land use after SRP would complete its postmining reclamation obligations could take other forms depending on decisions made by the various land owners.

Land 13-B - The level of livestock grazing that currently exists in the proposed project area would probably not be reduced if the project is approved. Instead, livestock would be shifted to other Federal, State, or private grazing areas that are not the focus of active mining. The current rate of livestock grazing in the region is approximately 7 to 12 head of cattle per section depending on the quality of the particular grazing area. Active mining would occupy approximately 2 sections of surface area at any one time, which would prevent a maximum of 24 head of cattle from grazing in the area.

Responses to Comments on Esthetics (Esth)

In summary, comments were received regarding esthetic impacts owing to light pollution, potential odors from sedimentation ponds, and visual intrusion and noise produced by mining activities and the operation of the railroad.

Esth 8-A - Your comment is acknowledged. Please see chapter 4, section C-6.

Esth 10-A - Your comment is noted. Please see chapter 4, section C-6 for an analysis of the impacts to esthetics that would occur if the proposed project were approved.

Esth 14-A - Minimal odors would be produced by the sedimentation ponds and there would be a negligible impact from such odors beyond the proposed mine permit area. The mine would be inspected on a regular basis by the regulatory authorities to ensure that mining activities were being conducted in compliance with Federal and State laws and regulations, including those that apply to air and water quality standards,

Esth 14-B - At the present time there is no regulatory basis for conditioning a mining permit to require a coal operator to avoid light contamination during nighttime operations. The proposed Fence Lake mine would be a single-dragline operation and, considering the surrounding topography of mesas and buttes, the agencies do not anticipate that light contamination from the mine would have more than a negligible impact on esthetics.

Esth 16-B - Your comment is acknowledged. Impacts to visual resources and noise are analyzed in chapter 4, section C-6.

Responses to Comments on Socioeconomics (Soc)

In summary, comments were received regarding favorable economic impact, length of economic impact, geographical scope of socioeconomic impact, need for employment, distribution of wages and salaries, impacts to public services and housing, and potential for boom-and-bust economic cycles.

Soc 1-A - Your comment is noted.

Soc 1-B - Yes, the analysis concludes that a short term beneficial impact to socioeconomic resources would occur under Alternative 1. But the agencies define "short term" as the life of the mine including the reclamation period, which amounts to approximately 50 years.

Soc 1-C - Your comment is acknowledged.

Soc 2-A - Your comment is acknowledged.

Soc 2-B - As proposed, the project would actually consist of a 2-year construction period followed by 38 years of active mining and a 10-year reclamation period. Please see appendix A, section 1.

Soc 2-C - Your comment is noted.

Soc 2-D - Your comment is noted.

Soc 2-E - Acoma and Sky City are beyond the geographical range of the socioeconomic study area for the proposed project. Please see chapter 1, section F.

Soc 2-F - Your comment is acknowledged.

Soc 2-G - The analysis concludes that approval of Alternative 1 would have minor to moderate, short term, beneficial socioeconomic impacts to parts of Cibola County that are within the study area. Please see chapter 4, section C-7.

Soc 2-H - Please see response to comment Soc 2-G. The analysis of other resources has found that nearly all impacts from mining would be negligible, minor, or moderate. See Comparative Summary of Impacts in Table 2-1.

Soc 8-A - Please see response to comment Soc 1-B.

Soc 14-A - SRP has indicated that if the Fence Lake mine is approved it would probably hire employees from the surrounding region that includes Catron, Cibola, and Apache counties. Although hiring practices are at SRP's discretion, for the purposes of this analysis the EIS team has estimated that from one-third to one-half of the wage and salary income will be earned by local residents, i.e., residents of Catron County. See chapter 4, section C-7.

Soc 14-B - Please see response to comment Soc 14-A.

Soc 14-C - The EIS team's only formal contact with the residents of Quemado has been at public meetings where public comments were taken during the scoping process and after the publication of the draft supplemental EIS. The EIS team, which is conducting an objective analysis, has not made any statements to the residents of Quemado regarding positive or negative socioeconomic impacts from the proposed Fence Lake mine.

Soc 18-A - Potential impacts to local public services and housing are largely dependent on which communities and geographic areas would supply employees for the Fence Lake mine and railroad corridor. Until SRP actually begins hiring only estimates can be made. Please see response to comment Soc 14-A.

Soc 19-A - Your comment is acknowledged.

Responses to Comments on Cultural Resources (Cult)

In summary, comments were received regarding the Department of the Interior's trust responsibility to all Native American tribes, impacts to salt pilgrimage trails, impacts to specific cultural sites, impacts to the Zuni Salt Lake and neutral zone, impacts to burial sites, reburial sites, aboriginal water resources and rights, eligibility for listing on the National Register of Historic Places, religious significance, traditional religious practices, mitigation of impacts to cultural resources, concerns about Cerro Prieto and the Acoma White Rock, the Programmatic Agreement on the treatment of cultural resources, the Memorandum of Agreement on human burials, access to religious shrines and to the Zuni Salt Lake, consultation with tribal elders, potential for vandalism of archaeological sites, and compliance with the American Indian Religious Freedom Act.

Cult 1-A - OSM is aware of the Department of Interior's trust responsibilities to Native Americans and has incorporated consideration of these responsibilities and other applicable laws and regulations throughout the supplemental EIS. Consideration of these responsibilities was one of the factors that prompted the preparation of the supplemental EIS. Particular attention was given to cultural resources including prehistoric archaeological sites, Zuni Salt Lake, salt gathering trails, and other traditional properties.

Cult 1-B, 1-C, 1-D, and 1-E - As a result of intensive archaeological inventory and ethnographic studies, sponsored by Salt River Project (SRP) and conducted in concert with the areas Indian Tribes, many cultural resources were identified in the project area. As noted in the supplemental EIS (appendix D) plans are in place or are being proposed to mitigate the impacts the mine might have on the cultural resources of the area. Mitigation measures include: data recovery programs for prehistoric and historic sites designed to collect information about the sites before they are impacted, protection by avoidance of the Acoma White Rock, facilitated access to and use of the Salt Gathering Trails on SRP controlled lands, access across the railway corridor where trails are projected to cross, and reestablishment of the Acoma Trail where it will be affected by the proposed mining operation. In addition, SRP would be required to monitor underground aquifers at two locations between the mine and the Zuni Salt Lake and would also monitor water levels and air quality at the lake. Finally, SRP would provide cultural resource training for its employees.

Cult 1-F - The BLM in consultation with the area's Indian Tribes and State and Federal agencies continues to develop a Memorandum of Agreement that provides procedures for the sensitive treatment of burials both prehistoric and historic should they be threatened by mining and related operations. In the even the Memorandum of Agreement is not ratified, the human remains would be treated consistent with appropriate State and Federal laws. In response to your reference to the Council on Environmental Quality Regulations [40 CFR 1508.27(b)(4) and (8)] the whole of the supplemental EIS, including consideration of impacts to cultural resources, takes these regulations into account. See chapter 1, section D.

Cult 1-G - Please see responses to comments Cult 1-B, 1-C, 1-D, 1-E, and 1-F. Additionally, SRP sponsored detailed ethnographic studies of the area that involved interviews and field trips with elders from the Acoma, Hopi, Zuni Tribes and the Ramah Navajo Band. One result of these investigations was the rediscovery of the location of many of the Salt Trails that were previously unknown.

Cult 2-A, 2-B, 2-C, 2-D, and 2-E - As part of their mine planning process and permit application development, SRP sponsored archaeological inventories of the whole of the proposed permit area and transportation corridor in order to identify cultural resources located in these areas. Additionally, SRP undertook a major ethnographic study of the area, in concert with the regional Tribes, to better understand the nature of the cultural resources that might be impacted by the proposed mining operations. As a result of these studies and considering Federal and State laws and regulations concerning treatment of cultural resources, plans have been developed for the treatment of the archaeological sites that have been determined eligible for the National Register of Historic Places. A Memorandum of Agreement has been developed for the sensitive treatment of human remains and is currently under review. SRP has offered to provide an area on SRP-owned land, at an appropriate distance removed from mining activity, that would be used for the reburial of human remains encountered in the project area. The supplemental EIS also proposes several mitigative strategies for the treatment of identified traditional cultural properties.

Cult 2-G - As you noted, the Salt Gathering or Pilgrimage Trails are properties that are eligible for listing on the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires that OSM take into consideration how this permit application will affect historic properties. While it may be possible to avoid and protect eligible properties, it is not a requirement of the law. Mitigation of effects would be employed in those situations where historic properties can not be avoided; such as the case of the Acoma Trail, where segments would be impacted by mining. One appropriate mitigation measure may be the reestablishment of the impacted trail segment after mining. Please also refer to response to Cult 18-B.

Cult 2-H - Your comment is noted. When identification has been established, eagles and other birds of prey as well as nesting areas and other habitats would be protected. Please see response to comments Wild 1-B and 13-A.

Cult 2-I - Please see response to comments Cult 2-A, 2-B, 2-C, 2-D, and 2-E. Additionally, the proposed federal action proposes no restriction on pilgrimages to the Zuni Salt Lake, use of the trails, or visitation to other shrines. SRP has indicated a willingness to permit and provide access onto and through lands that they control for Native Americans to continue their cultural practices. For safety reasons a notification process will need to be developed for use of lands within the proposed coal mining permit between the tribes and SRP so that SRP is aware of a proposed use and can make necessary arrangements to assure safety.

Cult 2-J - A program has been established to recover information from the properties that have been determined eligible for the National Register of Historic Places before they are impacted. See supplemental EIS, appendix D. Although there are number of sites that will be impacted by mining operations, a similar number will be protected by avoidance within the mine lease area.

Cult 2-K - Thank you for your comments. Please see response to comments 2-A, 2-B, 2-C, 2-D, and 2-E.

Cult 2-L and 2-M - Your comments are acknowledged. Much of the Acoma Trail in the mine area has served as, and remains as part of, the existing ranch road. A portion of the Acoma trail lies in an area that is planned for mining. This portion of the trail would be destroyed. The trail has been plotted using geographic positing technology which would allow for the accurate "reestablishment" of the trail location during reclamation. Please see response to comment Cult 2-I.

Cult 3-A, 3-B, and 3-C - Your comments are noted. Please see response to comments Cult 2-A, 2-B, 2-C, 2-D, 2-E, and 2-I.

Cult 5-A - Section 106 of the National Historic Preservation Act (NHPA) requires that OSM take into account how the approval of the life-of-mine plan would affect any properties listed on or eligible to the National Register of Historic Places. To satisfy this responsibility OSM has executed a Programmatic Agreement (PA), pursuant to 36 CFR Part 800.13, with the Advisory Council on Historic Preservation, the Bureau of Land Management, the Arizona and New Mexico Historic Preservation Officers. The PA sets forth the procedures that would be followed by these consulting parties to facilitate the identification, determinations of eligibility and effect and the treatment of properties that may be affected by this undertaking. The PA also establishes procedures for consultation with affected Tribes, who are referred to as “concurring parties.” Acoma Pueblo and Zuni Pueblo are signatories to the PA, but the Hopi Tribe, the Ramah Navajo and the Navajo Nation are considered interested parties and have been involved in the development and implementation of the PA. To date all of the Tribes have been extensively involved with SRP’s efforts to identify cultural properties. All future issues concerning the identification, evaluation and treatment of historic properties would be conducted consistent with the provisions of the Programmatic Agreement.

Cult 8-A - Please see response to comment Cult 1-A.

Cult 8-B - On page viii, the supplemental EIS states that “Impacts to cultural resources would be moderate to major, and some could be long-term.” Impacts to some of the “cultural resources” will be irreversible, but the PA (see response to comment Cult 5-A) would ensure that the data that make these properties eligible for the National Register of Historic Places will be retrieved consistent with the approved Treatment Plan and data recovery plans that would be prepared for each phase of mining.

Cult 8-C - Please see response to comment Cult 8-B. The Acoma Trail is the only Salt Pilgrimage Trail that will be directly impacted by the proposed Fence Lake Coal Mine. See also response to comments Cult 2-I, 2-L, and 2-M.

Cult 8-D - The supplemental EIS reports that a total of 595 archaeological or historical properties have been identified within the proposed Fence Lake Mine project area. At this time it is anticipated that a total of 382 sites would be disturbed by the proposed mining operations (see Table 4 - 4). Not all of these sites are considered eligible. The treatment of the significant sites would be phased if the mine is developed over the next 40 years.

Cult 8-E - The Acoma Trail is the only Pilgrimage Trail that would be directly impacted (physically altered) by the proposed mining operation. SRP is currently proposing to remove gravel from the base of Cerro Prieto. The impact would be limited and short term. Consultations with the various Tribes concerning all Traditional Cultural Properties would be carried out pursuant to the Programmatic Agreement. See response to comment Cult 5-A.

Cult 8-F - Two burials (one in the proposed permit area and the other along the transportation corridor) have been identified to date, but it is impossible to know if any other human burials are present. All Native American burials found within the proposed permit area would be treated with respect in accordance with the Burial Memorandum of Agreement, if it is executed, and applicable State or Federal law.

Cult 8-G - The Programmatic Agreement is a public document and is included as appendix D of the supplemental EIS. The proposed burial memorandum of agreement is currently under review.

Cult 10-A - Acoma Pueblo is a signatory to the Programmatic Agreement. Please see response to comments Cult 1-B, 1-C, 1-D, 1-E, 2-I, and 5-A.

Cult 10-B - Please see response to comment Cult 8-F. Untreated affects to burials could be considered a major impact. All burials found within the proposed permit area would be subject to treatment, which would reduce the long term effects to a moderate impact.

Cult 10-C - Your comments are noted. Based on your comments, we will consider the use of a religious practitioner to mitigate the effects to the Acoma Trial to be inappropriate. The text of the supplemental EIS has been revised. Please see the response to comment for Cult 1-B, 1-C, 1-D, 1-E, 2-I, 5-A and 10-D.

Cult 10-D - Portions of the Acoma Salt Trail, other Salt Trails, and the Acoma Shrine are located on lands under private ownership. OSM has no authority to provide the Pueblo with an easement or access to private lands. Accommodations to visit or use trails or shrines on private land must be made between the Pueblo and the appropriate landowner. The shrine is also located on private property and access to perform religious ceremonies must be sought through the land owner. SRP has indicated a willingness to provide and facilitate access onto and across lands that it controls so that Native American traditional practices may continue. For safety reasons a notification process will need to be developed.

Cult 10-E - The BLM in consultation with the New Mexico Historic Preservation Division (cf. letter dated March 24, 1994 and the response from the Deputy SHPO dated April 30, 1994) determined that "26 confirmed trail segments" were eligible for the National Register of Historic Places as a discontinuous district. All confirmed (field-checked) portions of the Acoma Trail are eligible for the National Register, consistent with the BLM's determination. New segments may be added to this National Register District, provided that each segment can be documented through field inspections.

Cult 11-A - Please see response to comment Cult 10-A.

Cult 11-B - The identified portions of the trail have been accurately located and, upon completion of the proposed mining, the trail could be restored during reclamation. Additionally, the proposed Federal action proposes no restriction on pilgrimages to the Zuni Salt Lake, use of the trails, or visitation to other shrines. SRP has indicated a willingness to permit and provide access onto and through lands that they control for Native Americans to continue their cultural practices. For safety reasons a notification process would need to be developed between the Tribes and SRP for use of lands within the proposed coal mining permit area so that SRP is aware of a proposed use and can make necessary arrangements to assure safety.

Cult 13-A - The BLM and SHPO, in consultations conducted pursuant to the Programmatic Agreement (see response to comment Cult 5-A), determined that the "Neutral Zone" did not meet the criterion for a property set forth in National Register Bulletin 38 (cf. the BLM letter dated May 10, 1994 and the SHPO letter dated April 30, 1994). The Neutral Zone supports the eligibility of the Zuni Salt Lake and would not exist without the Lake.

Cult 13-B - SRP has sponsored an exhaustive ethnographic study, which included extensive consultations with Native American elders and religious leaders. Please see response to comment Cult 5-A.

Cult 18-A - Please see response to comment Cult 13-A.

Cult 18-B - The BLM in consultation with the New Mexico Historic Preservation Division (letter dated March 24, 1994 and response from the Deputy SHPO dated April 30, 1994) determined that "26 confirmed trail segments" were eligible for the National Register of Historic Places as a discontinuous district. All segments of the various Salt Pilgrimage Trails that can be confirmed by a field inspection are eligible for the National Register, consistent with the BLM's determination. No physical remnants of trail segments are known to exist within the proposed transportation corridor.

Cult 18-C - Please see response to comment Cult 8-F. Impacts to burials, with appropriate treatment, are considered moderate. Therefore, the text and the reference in the supplemental EIS have been changed accordingly.

Cult 18-D - According to SRP, if it decides to develop a gravel quarry on its property near Cerro Prieto the quarry would be restricted to 50 acres. The gravel removal would be sensitive to and would blend in with the natural topography as closely as possible. If a coal mining permit is issued, final reclamation of the gravel quarry would be required to match the natural (undisturbed) angle of repose along the talus slopes.

Cult 18-E - The BLM and SHPO determined that an archaeological site, in general, will not be considered a Traditional Cultural Property without specific justification. This finding is consistent with National Register Bulletin 38. OSM does not intend for the EIS process to duplicate or be a substitute for the requirements of Section 106 of the National Historic Preservations Act. "Impact" in the context of NEPA is not defined or used in the same way that "effect" is used under NHPA.

Cult 18-F - Access to the archaeological sites and Traditional Cultural Properties within the permit boundaries would be strictly controlled during the time that the Fence Lake Mine is in operation if the proposed project is granted a coal mining permit. The permittee would also be responsible for the protection of historic properties within the permitted area. SRP has expressed a willingness to institute awareness training to increase its employees' awareness of, and sensitivity to, historic properties as a mitigation measure. SRP may also provide that violations of its cultural resources policy, including vandalism, by any of its employees would carry heavy penalties. Access to Zuni Salt Lake is a different issue, because the lake is not included in the permit area and the regulatory agencies through their permitting authority have no ability to restrict the public's access to State or County roads. We must remember that public access to Zuni Salt Lake already exists and it can be argued that visitation will continue to grow in the years to come. It is our opinion that the development of the Fence Lake Mine will have an imperceptible impact on future visitation compared to various regional newspaper stories or other forms of media advertisement, not to mention word of mouth, about Zuni Salt Lake. Given that a visitation problem probably already exists, Zuni Pueblo may wish consider ways to provide better access control at the Lake.

Cult 18-G - The subject of context and intensity as they relate to the term "significantly" raises some interesting problems. OSM, as the lead agency, walks a very fine line on the issues of Traditional Cultural Properties and Tribal cultural beliefs and religion because of the issue of confidentiality. The supplemental EIS is not the only forum for these issues. SRP, BLM and OSM have spent considerable time working with the various Tribes to understand their positions and concerns. The Permit Application Package contains volumes of information on issues relating to the Zuni, Hopi, Ramah Navajo and Acoma views and beliefs about the Zuni Salt Lake and other sensitive cultural issues. All of this information is considered sensitive and confidential. The Consulting Parties to the Programmatic Agreement (BLM, OSM and the SHPOs) have access to this data and have used it in consultation with the Tribes to protect or develop standards for the treatment of historic properties that will be affected if the Fence lake Mine becomes a reality. Section 106, National Historic Preservation Act, has created an opportunity for OSM to consider the "Zuni cultural context" and still protect sensitive cultural information that was only given with the guarantee of privacy. It is difficult to know how much detail can be include in an EIS before the commitment to confidentiality is violated. OSM has attempted to present the issues in a comprehensive and sensitive manner.

Cult 18-H - The appropriate changes have been made to the bibliography, appendix C-2 and C-5.

Cult 19-A - The Fence Lake Project has actually helped to enhance the ability of Native Americans to maintain their age old "religious traditions." Based on the extensive research conducted since 1991, it appears that the Tribes knew about the existence of Salt Trails and other Traditional Cultural Properties, but few, if any, tribal members knew of their exact locations. This information was given back to the Tribes through the efforts of SRP and their ethnographers. The Tribes made the choice to provide sensitive information so that resources could be protected. Mechanisms have been created to involve them in the evaluation and disposition of cultural resources that may be affected if the mine is permitted. For their part, the Federal and State agencies and SRP have agreed to keep sensitive cultural information confidential.

Cult 19-B - Please see response to comment Cult 13-B.

Cult 19-C - Please see response to comment Cult 8-F.

Cult 19-D - Please see response to comment Cult 19-A.

Cult 19-E - Please see response to comment Cult 5-A.

Responses to Comments on Transportation (Trans)

In summary, comments were received regarding the width of the proposed railroad right-of-way compared to the width of a coal haulage road, the depiction of certain county roads on Figure-1, and the method used to estimate traffic volume on certain roads.

Trans 2-A - Your comment is acknowledged.

Trans 2-B - According to SRP's PAP, the right-of-way for the proposed railroad would vary from 150 to 250 feet in width. The width of right-of-way does not necessarily mean the full width of that designated area would be disturbed, it simply allows for flexibility should designs and conditions warrant changes from the typical design. Coal haulage roads would have to accommodate two-way truck traffic, which would require a minimum width of 65 feet. Any cut or fill areas, berms, drainage channels or other associated road structures could expand the total width to at least 150 feet.

Trans 3-A - Your comment has been noted. The map, as presently shown in the supplemental EIS (Figure 1), is being updated to reflect the current, correct location of A034. The revised location will indicate the Hubbell Road (A034) running parallel to the T4N-T3N section line (east-west), rather than to the southeast into section T3N.

Trans 3-B - See response to comment Trans 3-A.

Trans 3-C - The estimation for daily 1-way trips was 270. This number was arrived at by doubling the maximum number of projected employees (134 employees - single person vehicles) plus adding 1 vendor (round trip). Since the best available information suggests that employees would commute in a somewhat dispersed pattern from around the entire three-county region, a determination of traffic impacts to particular roads has not been part of this analysis.

Trans 3-D - See response to comment Trans 3-A.

Trans 3-E - See response to comment Trans 3-A.

Trans 3-F - See response to comment Trans 3-A and Trans 3-C.

Trans 14-A - See response to comment Trans 3-A.

Responses to General Comments (Gen)

Because of the great diversity of subjects covered, a summary of the comments of a general nature that were received is inappropriate.

Gen 1-A - This is still a proposed project whose future status will depend on a set of Federal and State decisions that are still to be made. See chapter 1-C of this supplemental EIS.

Gen 1-B - Various individuals and interest groups have expressed concerns about the proposed Fence Lake Project. Since these include different types and varying degrees of concern, it is difficult to label any individual or interest group as the principal opponent of the proposed project. A complete set of comments received during the public comment period for the draft supplemental EIS has been reprinted in Appendix E of this document, which may provide additional insight on concerns about the proposal.

Gen 1-C - The permit application package that SRP has submitted to the State of New Mexico MMD and OSM does not include any plans to build a power generating plant either on the mine site or near the mine. According to SRP's application, the coal from the proposed Fence Lake mine would be burned at the Coronado Generating Station in Arizona. Any change in this plan, either before or after decisions are made on the current application, would necessitate a significant revision in the project that would require a new permitting and environmental analysis process.

Gen 1-D - Operators can always apply for revisions to existing mining permits. However, significant revisions to permits are part of a complex process that includes extensive administrative and technical reviews, public notification and involvement in the process, and compliance with the requirements of the National Environmental Policy Act (NEPA). In the case of a new power plant, compliance with NEPA would probably require a new environmental analysis and the involvement of other Federal and State regulatory agencies.

Gen 1-E - Please see responses to comments Gen 1-C and 1-D.

Gen 1-F - Mine permitting processes have different timeframes from start to finish depending on many factors such as administrative and technical complexity, degree of public controversey, magnitude of the proposed project, completeness of the application, etc. In regard to the Fence Lake Project, the PAP was submitted to MMD for the New Mexico section in November, 1993, and to OSM for the Arizona section in May, 1995.

Gen 1-G - The agencies considered the no-action alternative and found it not to be reasonable since the Secretary of the Interior must take the action of making a decision on whether or not to approve the life-of-mine mining plan as required by the Mineral Leasing Act. See summary, section C.

Gen 1-H - OSM is very cognizant of the Department of the Interior's trust responsibilty to Native American tribes and this was one of the factors that prompted OSM as the lead agency in the Federal action to decide to prepare a supplemental EIS. See chapter 1, section A.

Gen 1-I - The Programmatic Agreement Regarding the Identification, Evaluation, and Treatment of Historic Propoerties Affected by the Fence Lake Coal Project is a public record that was signed in November, 1993 and released to all interested parties at that time. In fact, it has been included as appendix D of this supplemental EIS. When the Memorandum of Agreement on human burials is completed it too will be a public record that will be released to all interested parties.

Gen 1-J - Your comment is acknowledged. Please see chapters 1, section E and 5, section C.

Gen 1-K - The agencies received no requests from individuals asking that copies of the supplemental EIS be translated into another language specifically for them. However, the agencies contacted tribal representatives at the pueblos of Acoma and Zuni regarding translation services at public comment meetings, but the representatives did not believe that translation services were necessary and, indeed, no requests were made at the meetings for either Acoma or Zuni translations. When arrangements were made for a Navajo translator to be present at public meetings in Gallup, Grants, and Albuquerque, New Mexico, no translation services were requested. Therefore, the agencies conclude that an English-language version of the supplemental EIS adequately serves the needs of interested parties in the the study area.

Gen 1-L - Your comment is acknowledged. Please see chapters 1, section E and 5, section C.

Gen 1-M - The Secretary of the Interior's memorandum dated August 17, 1994 on the subject of environmental justice policy has been utilized during consideration of environmental justice in this supplemental EIS. Please see chapters 1, section E and 5, section C.

Gen 1-N - There are no other coal mining operations or facilities operating in or planned for the foreseeable future in the study area for the Fence Lake Project. See appendix B. Public issues involving other coal mines located more than 150 miles from the study area are not impacts to mining at the proposed Fence Lake mine and it would be inappropriate to analyze them in this supplmental EIS. Please see chapter 5, section D.

Gen 1-O - The proposed Fence Lake Project does not include any Indian land. Opinions about the enforcement of Federal law on Indian land involve larger public issues that are beyond the scope of this analysis. In order to make this a project-specific analysis only applicable issues are considered. Please see response to comment Gen 1-N.

Gen 1-P - Any reorganization, investigation or managerial concern related to OSM constitutes a public issue that would be well beyond the scope of this analysis and, since it would be unrelated to any impacts from mining at the proposed Fence Lake mine, is inappropriate for this supplemental EIS.

Gen 1-Q - See chapter 5 for a summary of the efforts made by the agencies to insure that the public has been given ample opportunities to become involved in the NEPA process for this supplemental EIS, including newspaper notices, radio announcements, posting of flyers, background handouts at meetings, mailing lists, public comment meetings, contacts with private organizations and county governments, consultation with Indian Tribes, and coordination with other government agencies.

Gen 1-R - Your comment is noted. However, none of these opinions are relevant to this analysis of impacts from mining at the proposed Fence Lake mine.

Gen 1-S - The proposed Fence Lake mine does not include any Indian land. However, OSM's achievements in living up to its trust responsibility and enforcing the Surface Mining Reclamation and Control Act of 1977 on the Navajo Nation as well as on other Indian Lands is a matter of long standing and lengthy public record, which is available for public review during normal working hours at OSM offices in Denver, Colorado; Albuquerque, New Mexico; and Casper, Wyoming.

Gen 1-T - One of the purposes of the NEPA process, whether it is related to a proposal to operate a mine or build a power generating station, is to afford the public a chance to become involved in the NEPA procedure and express its opinion. This is why public meetings are held in the project area and both oral and written comments are solicited from the public and considered in the NEPA analysis.

Gen 2-A - Although no Native Americans are on the EIS team, considerable effort has been made to obtain Native American input in the process. Consultations have been held with tribal representatives at Acoma, Laguna, Ramah Navajo, and Zuni. The Navajo Nation and Mescalero Apache were also invited to participate in consultations. Native American tribes with an interest in the project have also been consulted and invited to participate in the Programmatic Agreement Regarding the Identification, Evaluation, and Treatment of Historic Properties Affected by the Fence Lake Project and in the Memorandum of Agreement on Burials Affected by the Fence Lake Project. The majority of the public comment meetings were scheduled in locations that seemed particularly accessible to Native Americans who might have an interest in the project, e.g., Gallup, Grants, and Albuquerque, New Mexico. Arrangements were also made to have a Native American translator available at each of these locations.

Gen 2-B - The agencies are attempting to address public concerns by holding public meetings, consulting with tribal representatives, and encouraging members of the public to involve themselves in the NEPA process.

Gen 2-C - The agencies consider potential impacts to ground and surface water from mining as a major issue in the proposed project and carefully analyzed those environmental consequences. The analysis, which is summarized in Table 2-1, concluded that short and long-term impacts would be negligible to the quantity and quality of Zuni Salt Lake ground water. The agencies understand that all of the environmental issues may be considered major, but the impact from mining to that part of the environment may be neglible, minor, moderate, or major. See footnote 1 to Table 2-1.

Gen 2-D - The agencies have concluded that short-term impacts to air quality from mining would be minor. Please see response to comment Gen 2-C.

Gen 2-E - An interdisciplinary EIS team was assembled using the resources and technical specialists that were available in the lead and cooperating agencies. The EIS team has made considerable effort to obtain Native American input into the NEPA process. Please see response to comment Gen 2-A.

Gen 2-F - The agencies considered this issue but eliminated it from further analysis. Please see chapter 5, section D.

Gen 2-G - No decision has been made by OSM or by any other Federal or State authority concerning approval or disapproval of the proposed project. The supplemental EIS is an analysis that is designed to assist the agencies in ultimately making the best informed decision. The agencies select a preferred alternative based on the technical analysis of environmental consequences under the different alternatives. The decision-makers are not necessarily committed to the preferred alternative that is selected by the EIS team.

Gen 2-H - Yes, there would some impacts under either alternative, and these impacts would be in various degrees and intensities. Please see Table 2-1 for a Comparative Summary of Impacts.

Gen 2-I - The Surface Mining Reclamation and Control Act of 1977 was enacted by Congress to address these and other serious problems associated with coal mining.

Gen 2-J - Please see response to comment Gen 2-I.

Gen 2-K - One of the stated purposes of SMCRA is to "... protect society and the environment from the adverse effects of surface coal mining operations." [SMCRA, Sec. 102(a)]

Gen 2-L - Please see response to comment Gen 2-C.

Gen 2-M - The permit application package submitted by SRP to OSM and MMD includes a fugitive dust control plan. If mining permits are issued for the proposed Fence Lake mine, the regulatory agencies would enforce compliance with the fugitive dust control measures contained in an approved PAP as well as compliance with applicable Federal and State air quality laws and regulations.

Gen 2-N - The EIS team has concluded that any impacts from mining to Zuni Salt Lake would be negligible. Please see Table 2-1.

Gen 2-O - Exposure to radiation from uranium would not be an impact from mining coal at the proposed Fence Lake mine. Please see response to comment Geo 2-A.

Gen 2-P - If the proposed Fence Lake mine is issued mining permits all mining activity would be restricted to the approved permit area.

Gen 2-Q - Your comment is noted. Please see response to comment Gen 2-A.

Gen 2-R - Cultural and religious concerns are addressed in chapter 4. Please see chapter 4, section C-8-b for a summary of the impacts to cultural resources from mining at the proposed Fence Lake mine.

Gen 2-S - Please see response to comments Gen 1-H and chapters 1, section E and 5, section C.

Gen 2-T - Please see response to comment Geo 2-A. According to the permit application package that SRP has submitted to OSM and MMD, all of the coal that would be mined at the proposed Fence Lake mine would be used at the Coronado Generating Station near St. Johns, Arizona.

Gen 2-U - Please see response to comments Gen 2-I and 2-K.

Gen 2-V - Please see response to comment Gen 2-K.

Gen 2-W - Your comment is noted.

Gen 2-X - OSM is in the process of promulgating nationwide regulations affecting the operation of railroads associated with coal mining operations. Until such regulations are enacted, OSM addresses such situations on a case-by-case basis. Therefore, there is currently no relationship between SRP's operation of the Black Mesa and Lake Powell Railroad and its eligibility for a permit at Fence Lake under SMCRA.

Gen 2-Y - The supplemental EIS and its analysis of impacts was prepared in accordance with guidelines that have been established for the NEPA process. This process includes consideration of public concerns. Native American concerns and values, including Acoma, have been considered extensively in the cultural resource analyses presented in chapters 3 and 4. Also, please see response to comment Gen 2-A.

Gen 2-Z - The life-of-mine of the proposed Fence Lake mine would be approximately 50 years: 2 years for premining development, 38 years to mine coal, and 10 years to reclaim the area and obtain final bond release.

Gen 2-Z1 - Please see response to comment Geo 2-B.

Gen 2-Z2 - Please see response to comment

Gen 3-A - For the purposes of NEPA analysis, OSM defines the duration of a short term impact as "the life of the mine, including the reclamation period." Please see Table 2-1, footnote 1. Relative to the life of the environment, this is a finite period of time that is strictly regulated by Federal and\or state mining permits over a comparatively short term.

Gen 3-B - Notification about the public comment meetings on the supplemental draft EIS occurred once that document was published and released for public review. Therefore, the notification record is included in chapter 5 of this supplemental EIS.

Gen 3-C - Yes, the public involvement and notification information in chapter 5 of this supplemental EIS includes the number of people who chose to attend the public comment meetings.

Gen 3-D - The requested information is part of the public record and a copy was furnished to this member of the general public.

Gen 3-E - Please see response to comment Gen 3-D.

Gen 3-F - The mining permit decisions have not been made for the proposed Fence Lake mine so there are no existing special conditions.

Gen 3-G - Please see response to comment Gen 3-D.

Gen 3-H - Please see response to comment Gen 3-D.

Gen 3-I - Please see response to comment Gen 3-D.

Gen 3-J - The request for a 30-day extension of time for the formal comment period was denied since no compelling reasons of national policy appeared to be associated with the request pursuant to 40 CFR 1506.10(d).

Gen 3-K - Please see response to comment Gen 3-D.

Gen 3-L - The haul road is not part of the proposal that SRP has submitted in its application to the regulatory authorities and, therefore, is not a component in this analysis.

Gen 3-M - The alternative of hauling coal to the Coronado Generating Station over the existing road network rather than building a railroad corridor was considered as an alternative but eliminated from further analysis. This was not considered a reasonable alternative for the foreseeable future. See chapter 2, section B.

Gen 4-A - A review of the geodetic control information has determined that none of the geodetic control points will be affected by the proposed project.

Gen 8-A - Your comment is acknowledged. Please see response to comment Gen 1-G.

Gen 8-B - CEQ regulations at 40 CFR 1508.27 specify that "significantly" as used in NEPA requires considerations of both context and intensity. Furthermore, CEQ regulations at 1508.27(b)(4) and (8) specify that the following criteria should be considered in evaluating intensity: (1) the degree to which the effects on the quality of the human environment are likely to be highly controversial, and (2) the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. The agencies evaluated significance relative to the proposed Fence Lake action in accordance with these CEQ specifications and determined that preparation of a supplemental EIS was warranted. Please see chapter 1, section D.

Gen 8-C - Please see response to comment Gen 1-J.

Gen 8-D - Please see response to comment Gen 1-K.

Gen 8-E - Your comment is confirmed by the information provided in the cover sheet to the supplemental EIS.

Gen 8-F - Please see response to comment Gen 1-M.

Gen 8-G - Please see response to comment Gen 1-N.

Gen 8-H - Please see response to comment Gen 1-O.

Gen 8-I - Please see response to comment Gen 1-P.

Gen 8-J - Please see response to comments Gen 1-P and 1-Q.

Gen 8-K - Please see response to comment Gen 1-R.

Gen 8-L - Please see response to comment Gen 1-S.

Gen 9-A - These concerns and related environmental issues are the subject matter that you will find analyzed in this supplemental EIS. See chapters 3 and 4.

Gen 9-B - Your comment is noted by the agencies who have prepared this supplemental EIS and who have respective Federal and State responsibility for insuring that the proposed project is in compliance with all applicable laws and regulations.

Gen 10-A - Please see response to comment Gen 2-F.

Gen 11-A - Please see response to comments Gen 2-I and Gen 2-K.

Gen 13-A - Please see response to comment Gen 1-G.

Gen 13-B - The agencies considered this alternative but dismissed it from further analysis after it was found not to be a reasonable alternative. Please see chapter 2, section B.

Gen 13-C - Based on the results of the analysis of impacts to the human and physical environment from the proposed project, the agencies selected Alternative 1 as the preferred alternative. The supplemental EIS explains that two viable alternatives are considered: Alternative 1 - approval, with conditions; or Alternative 2 - disapproval. Please see response to comment Gen 1-G for an explanation of why the no-action alternative was eliminated from further analysis.

Gen 13-D - The NEPA analysis is based on the permit application package that SRP has formally submitted to the regulatory agencies for the proposed project and associated baseline data. The agencies have no information that the project would be expanded in the foreseeable future beyond the parameters of the current proposal. However, any future proposal to expand the project would require mining permit revisions and compliance with applicable Fedeal and State laws, including compliance with NEPA.

Gen 13-E - Please see chapter 5, section D for an explanation of why this issue was eliminated from further analysis.

Gen 13-F - The rationale for eliminating each of these issues from this project-specific analysis is explained on chapter 5, section D.

Gen 13-G - This comment actually addresses two separate NEPA actions. Federal law required BLM to be the lead agency for the NEPA leasing action in 1990 because it was the agency that was responsible for making a decision regarding the issuance of leases to mine Federal coal. OSM is required to act as the lead agency in the current NEPA process because it is the agency with primary responsibility for compliance with NEPA when an action pertains to the recovery of Federal coal. Lead agency status for each of these NEPA actions is mandated by Federal law and the agencies have no influence over the process.

Gen 13-H - The operation of the Coronado Generating Station is beyond the scope of this analysis. See chapter 5, section D.

Gen 13-I - If the project is approved by the respective Federal and State regulatory authorities, the project could begin after the issuance of mining permits.

Gen 13-J - The Salt Lake Coal Field in which the proposed Fence Lake mine would be located contains a projected reserve of 480 million tons of coal.

Gen 13-K - There are no other pending coal leases or applications for coal leases in the project area at the present time.

Gen 13-L - Your comment has been noted. Please see chapter 4, section C-5 for an analysis of impacts to Wilderness Study Areas.

Gen 13-M - Your comment has been noted. Please see chapter 4, section C-5 for an analysis of impacts to Special Management Areas.

Gen 13-N - Please see appendix B.

Gen 13-O - Please see chapter 5, section D.

Gen 13-P - Please see response to comment Gen 1-M.

Gen 13-Q - Please see response to comment Gen 2-G.

Gen 13-R - Two separate Federal actions have required two separate NEPA analyses by different responsible Federal agencies. See response to comment Gen 13-G. In the interest of making all of the analyses available to the general public, OSM has republished the BLM 1990 draft and final EIS as volume II of the supplemental EIS.

Gen 13-S - Your comment has been noted.

Gen 15-A - Subsequent to the publication of the Fence Lake Project draft EIS by the BLM (May 1990), the BLM prepared its Maximum Economic Recovery (MER) report and the outer boundaries of the two coal lease areas were modified to conform to logical mining unit boundaries as defined by the BLM in the MER. The State of New Mexico holdings in Sections 16 and 33 are both situated in Cox Draw, generally beyond the western boundary of one of the logical mining units. Most of the coal in these two areas has been deplaced by valley alluvium. Therefore, no sigificant sterilization of reserves would reslt from bypassing these two areas. In contrast, the 40 acre parcel in Section 10 does contain coal and is located within the boundaries of the logical mining unit.

Gen 16-A - Actual coal recovery involving blasting operations would last a maximum 38 years. The agencies define "short term" as life of the mine, including the reclamation period. See footnote 1 to Table 2-1.

Gen 16-B - Please see response to comments Gen 1-H, 1-S, and 2-B.

Gen 16-C - Please see response to comment Gen 1-O.

Gen 16-D - Please see response to comment Gen 1-N and chapter 5, section D.

Gen 17-A - Water quality monitoring would be required at the proposed mine site and any ground-disturbing activities would require approval from the regulatory authority and a formal revision of the mining permit. The mine site would also be inspected on a regular basis by both Federal and State inspectors. SRP's water quality and water quantity protection plan and water monitoring plan for the proposed Fence Lake mine are part of its permit application package.

Gen 17-B - Federal and State mining permit regulations require air quality monitoring and the implementation of a fugitive dust control program.

Gen 18-A - Your comment is acknowledged.

Gen 18-B - The railroad would be part of the mining operation that is proposed in SRP's permit application package. The Coronado Generating Station (CGS) is an existing facility that is not part of any mining operation. Changing the CGS source of coal to Fence Lake would still not make the power plant part of any mining operation.

Gen 18-C - Although the Coronado Generating Station is beyond the scope of this analysis, it should be noted that power plants are subject to the same environmental regulations regardless of the source or quality of coal supply.

Gen 18-D - Your comment is acknowledged. However, since Zuni Salt Lake is a trust property under the control of the Zuni Tribe its security, whether currently or in the foreseeable future, is the responsibility of the Zuni Tribe just as real property security would be for any other local landowner.

Gen 18-E - The powerplant was considered in the Summary Description of Cumulative Development, but eliminated from further analysis as an issue. Please see chapter 5, section D and appendix B.

Gen 18-F - Your comment is noted.

Gen 19-A - Please see response to comment Gen 1-G.

Gen 22-A - This commentor specified that his comments were "Not For Publication." Therefore, his comments have been noted but not published in deference to his request.

Gen 23-A - Your request has been complied with.

Gen 24-A - Your request has been complied with.

APPENDIX F

GLOSSARY

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GLOSSARY

Ambient air: That portion of the atmosphere, external to buildings, to which the general public has access.

Acre-foot, acre-feet: A unit for measuring volume, equal to the quantity of water or other material required to cover 1 acre of land surface to a depth of 1 foot, or a volume of 43,560 cubic feet, or 325,851 gallons.

Agencies, the: OSM, BLM and MMD, the Federal and State agencies primarily responsible for preparation of the supplemental EIS for the Fence Lake Project.

AIRFA: American Indian Religious Freedom Act of 1978.

Alluvial: Pertaining to the material or the processes associated with transportation or deposition of material by the action of flowing water.

Alluvium: A general term for deposits made by streams on riverbeds, flood plains, and alluvial fans. The term applies to stream deposits of recent time.

ANFO: Ammonium nitrate and fuel oil mixture.

Annuals: Plants that complete their life cycle and die in 1 year or less.

Approximate Original Contour: Surface configuration achieved by backfilling and grading of the mined area so that the reclaimed area, including any terracing or access roads, closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain, with all highwalls and spoil piles eliminated.

Aquifer: A water-bearing layer of permeable rock, sand, or gravel. A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to conduct groundwater and yield large quantities of water to wells and springs.

Aquitard: A rock unit with relatively low permeability that retards the flow of water.

ARPA: Archeological Resources Protection Act of 1979.

Artesian: Ground water under sufficient pressure to rise above the aquifer containing it.

At-grade crossings: An intersection of railroad and/or motor vehicle routes at ground level.

AUMs: Animal unit months, the quantity of forge required by the equivalent of a 1000 pound mature cow for one month.

Avian: Related to or derived from birds.

Biological Assessment: An evaluation conducted in accordance with the legal requirements under Section 7 of the Endangered Species Act (16 U.S.C. 1 536(c)) for major Federal construction projects. The purpose of the assessment and resulting document is to determine whether the proposed action is likely to affect any threatened or endangered species.

Backfilling and grading: The operation of refilling an excavation and finishing the surface.

BCY: Bank cubic yard. An in-place (i.e., in the ground) cubic yard of material.

Berm: An earthen structure, generally several feet high, which redirects the flow of traffic or water. A mound of stable material placed at the outside bottom of a topsoil or material pile to help hold the pile in position.

BLM: U.S. Department of the Interior, Bureau of Land Management.

Bond release: Return of a performance bond to a mine operator after the regulatory agency has inspected and evaluated the completed reclamation operations and determined that all regulatory requirements have been satisfied.

Borrow areas or fill areas: Places where earth material is removed or added for construction purposes.

CEQ: Council on Environmental Quality, Executive Office of the President. An advisory council to the President established by the National Environmental Policy Act of 1969. The Council reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

CFR: Code of Federal Regulations. A codification of Federal documents published by the Office of the *Federal Register*, National Archives and Records Administration.

cfs: Cubic feet per second.

CGS: Coronado Generating Station

CHIA: Cumulative Hydrologic Impact Assessment

Coal preparation plant: A facility where coal is sized, cleaned, and prepared for transport.

Coal reserves: The quantity of recoverable coal that is calculated to lie within given boundaries.

Coal resources: Total coal deposits, regardless of whether they can now be mined or recovered. Identified resources are resources whose location, grade, quality, and quantity are known or estimated from specific geologic evidence.

Coal waste: All the coal refuse from a mine.

COE: U.S. Department of Defense, Army Corps of Engineers.

Conspecific: Of the same species.

Crushed coal: Irregular fragments of coal crushed to smaller sizes after mining.

Cut and fill: Process of earth moving by excavating part of an area and using the excavated material for adjacent embankments or fill areas.

Dewatering areas: The removal of water by pumping or other methods.

Disturbed area: Surface acreage that would be actively disturbed by proposed mining or mining-related activities. An area where vegetation, topsoil, and/or overburden is removed, or, upon which topsoil, spoil, or waste is placed as a result of mining or mining-related activities.

Diurnal: Relating to or occurring in the daytime.

Diversion: A channel, embankment, or other man-made structure constructed for the purpose of diverting water from one area to another.

Drawdown: The lowering of the water table or potentiometric surface caused by pumping (or artesian flow). Knowledge of the amount of drawdown at a given pumping rate, over a specified length of time, is necessary to estimate the probable long-term effect on the water table.

Effluent limitations: Regulatory standards that apply to the discharge or outflow of water from ground or subsurface storage.

EIS: Environmental Impact Statement. An analytical document that portrays potential impacts to the human environment of a particular course of action and its reasonable alternatives as required by Section 102(2)(C) of the National Environmental Policy Act (NEPA).

Encinal: An oak grove or an area marked primarily by the growth of oaks.

EPA: U.S. Environmental Protection Agency.

Ephemeral stream: A stream that flows only briefly in direct response to rainfall or snowmelt events, has no baseflow, and whose channel is, at all times, above the water table.

Evaporite: Sediments deposited from an aqueous (water) solution as a result of extensive or local evaporation of a solvent, such as salts in Zuni Salt Lake.

Exploration holes: Boreholes drilled during the search for mineral deposits.

Federal land(s): Any land, including mineral interests, owned by the United States [40 CFR 700.5].

FLPMA: Federal Land Policy and Management Act of 1976, as amended (Public Law 94-579). An Act which gives BLM legal authority to establish public land policy, to establish guidelines for administering such policy and to provide for the management, protection, development, and enhancement of the public lands.

Forbs: A flowering plant whose aboveground stem does not become woody and is not grass or grasslike.

gpd/ft: Gallons per day per foot

gpm: Gallons per minute

gpm/ft: Gallons per minute per foot

Groundwater: Subsurface water that is in the zone of saturation. The top surface of the groundwater is the "water table." The source of water for wells, seepage, and springs.

Grubbing: Removing vegetation and other material from a surface area prior to mining or mining-related disturbance.

Highwall: The face of exposed overburden and coal in an open cut of a surface mine.

Hydraulic gradient: The slope of the free surface of water flowing in an open channel.

Hydrologic balance: The relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit such as a drainage basin, aquifer, or lake.

Hydrologic regime: The entire state of water movement in a given area.

ISC: Industrial Source Complex, developed by EPA for air quality modeling.

kV: Kilovolt, a unit measure of electricity equal to 1,000 volts.

Life of mine: Length of time from permitting to final bond release during which mine-related activities can occur and coal can be extracted.

LMU: Logical mining unit.

Loadout: Area/facility where coal is loaded onto some form of transport for delivery to market.

Long term: Period of time that begins after final bond release for the Fence Lake mine and railroad corridor and extends indefinitely into the future.

mg/l: Milligrams per liter

Mine life, the: The 50-year operational life of the proposed Fence Lake mine, from premining construction and development through bond release after final reclamation.

Mitigation: The lessening of a potential adverse effect by applying appropriate protective measures or adequate scientific study. Activities in the affected environment that avoid, minimize, reduce, eliminate, replace, or rectify the impact of a proposed action or practice.

MLA: Mineral Leasing Act of 1920, as amended.

MMS: U.S. Department of the Interior, Minerals Management Service.

NAAQS: National Ambient Air Quality Standards.

NAGPRA: Native American Graves Protection and Repatriation Act of 1990.

NEPA: National Environmental Policy Act of 1969, as amended. An act to establish a National policy for the environment, to provide for the establishment of a Council on Environmental Quality, and for other purposes. It requires Federal agencies to carefully consider the environmental consequences of agency actions; document environmental analyses and subsequent decisions appropriately, efficiently, and cost-effectively; and involve interested individuals, organizations, and agencies in the decisionmaking process.

NHPA: National Historic Preservation Act of 1966, as amended.

Nocturnal: The period of night between dusk and dawn (in relation to animals active by night).

NPS: U.S. Department of the Interior, National Park Service.

NRHP: National Register of Historic Places.

OSM: U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement.

Overburden: Material of any nature that overlies a mineral deposit, excluding topsoil.

PAP: Permit application package.

Particulate emissions: Finely divided solid or liquid particles discharged into the air in the form of dust, smoke, fumes, mist, spray, or fog. Generally considered to be pollutants.

Passerine: The largest order of birds, including most songbirds, that perch.

PATFM: Potentially acid or toxic-forming material.

PDES: Pollutant Discharge Elimination System.

Perennial stream: A stream that flows continuously throughout the year.

Perennials: Plants that live longer than 2 years.

Permanent seed mixes: Blends of seeds used to revegetate an area during final reclamation.

pH: A numerical measurement of acidity.

PM_{10}: Particulate matter less than 10 microns in size. An air quality measurement standard.

Postmining land use: The specific use or management-related activity to which a disturbed area is restored after completion of mining and reclamation.

Postmining topography: The relief and contour of the land that remains after mining has been completed.

Potentiometric surface: An imaginary surface representing the total head of groundwater and defined by the level to which water will rise in a well. A water table is a potentiometric surface.

Private land(s): Any land, including mineral interests, under private ownership that does not have Federal or State interest.

Project area: The 18,119 acres of private, State, and Federal land that comprise the operational limits of the proposed Fence Lake Project.

Project, the: The proposed Fence Lake Project, including the Fence Lake mine and railroad corridor with associated power, communication, loadout and other support facilities.

Public land(s): Lands (surface and mineral estate) owned by the United States and administered by the Bureau of Land Management.

Quaternary: The most recent period of geological time which began approximately 3 million years ago and includes the present time.

Raptors: Birds of prey with sharp talons and strongly curved beaks (e.g., hawks, owls, vultures, eagles).

Reclaim system: A system of tunnels and conveyor belts built beneath the coal storage pile for moving the coal out of the pile and onto transport trains.

Reclaim tunnel: A tunnel used to retrieve coal from storage above.

Recoverable coal reserves: The amount of coal that can actually be recovered from the demonstrated reserve base.

Revegetation: The reestablishment and development of self-sustaining plant cover following land disturbance. The enhancement of natural processes by human assistance through seedbed preparation, reseeding, and mulching.

Ripping: The act of mechanically breaking compacted soils or rock into pieces small enough to be economically transported by other equipment, such as a scraper or dozer.

Riprap: A layer of broken rock, cobbles, boulders, or fragments of sufficient size and thickness placed on the face of a dam, on stream banks, or on other land surfaces to protect them from the erosive forces of wind or flowing water.

RMP: Resource Management Plan. A written land use plan that outlines BLM decisions and strategies for management of the resources in a particular area, replacing the management framework plan in the BLM's planning system.

Root zone: That part of the soil that is, or can be, penetrated by plant roots.

ROW: Right-of-way. The legal right for use, occupancy, or access across land or water areas for a specified purpose or purposes. Also, the lands covered by such a right.

Run of mine coal: Raw, unprocessed coal, or other mineral material, as it is delivered from the mine by mine cars, skips, or conveyors, prior to treatment (separating, crushing, and/or cleaning.

RUS: Rural Utilities Service

SRP: Salt River Project Agricultural Improvement and Power District.

Salvaging depth: The distance below land surface from which soil material can be retrieved.

Sediment: Unconsolidated solid material that comes from weathering of rock and is carried by,
suspended in, or deposited by water or wind.

Sedimentation pond: A structure, such as a barrier, dam, or excavated depression, that slows down runoff for the purpose of allowing sediment to settle out.

SHPO: State Historic Preservation Officer. The official appointed by a given State's Governor to lead that State's historic preservation program and review all actions that affect the State's National Register Sites.

Short term: A 50-year period of time defined by the life of the mine (Fence Lake mine and railroad corridor), including the reclamation period.

SMA: Special Management Area, an area requiring special management by BLM to protect one or more resource values.

SMCRA: Surface Mining Control and Reclamation Act of 1977, as amended (Public Law 95-87). An Act to provide for the cooperation between the Secretary of the Interior and the States with respect to the regulation of surface coal mining operations, the acquisition and reclamation of abandoned mines, and other related purposes.

Soil horizon: A distinct layer of soil, approximately parallel to the land surface, and different from adjacent, genetically related layers in physical, chemical, and biological properties or characteristics.

Spoil: Overburden that has been removed during surface coal mining operations.

State land(s): Any lands, including mineral interests, owned by a given State.

Steady-state condition: A condition of stability or equilibrium.

Strata: A single sedimentary geologic bed or layer, of any thickness, that is made up of similar rock types.

Surfactant: Chemical agent, such as magnesium chloride, that is applied to the surface of roads to suppress dust.

Temporary seed mixes: Blends of seeds used to revegetate an area for a limited period of time prior to final reclamation.

Topsoil: The A soil horizon layer of the three major soil horizons or other surface soil material of suitable texture and pH, and lacking concentrations of elements toxic to plants.

Topsoil/subsoil stockpile: Soils that are removed prior to mining and gradually accumulated for reclamation and revegetation once mining is completed.

Transmissivity: The rate at which water is transmitted through an aquifer.

TSP: Total suspended particulates. The dry weight of particulate material (dust, smoke, fumes, mist, spray, or fog) suspended in the air.

umhos/cm: Micromhos per cubic centimeter (A "Mho" is the unit of electrical conductance).

Underburden: Material of any nature, consolidated or unconsolidated, that underlies a mineral deposit.

Unit-train: A train containing a standard number of cars, ranging from 80 to 110, that are loaded, moved, and unloaded as a single unit. Each car holds about 100 tons of material, for a total of about 8,000 to 11,000 tons being moved in each unit-train.

USDOI: U.S. Department of the Interior, Office of the Secretary.

USFWS: U.S. Department of the Interior, Fish and Wildlife Service.

Watershed: All land and water within the confines of a drainage divide.

Wildlife habitat: A geographical area that can provide for the key activities of wildlife. All elements of a wild animal's environment necessary for completion of its life cycle, including food, cover, water, and living space.

WSA: Wilderness Study Area. A roadless block of public lands which BLM has determined may possess the wilderness qualities described in the Wilderness Act of 1964.

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